TECHNOLOGY DEPT.

JANUARY, 1952

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Telephone Engineer *and Management*

THE NATIONAL TELEPHONE MAGAZINE

Featuring In This Issue—

- Independents Face Major Problem, *by Roland Davies*
- Modern Central Office Maintenance, *by John S. Reed*
- "Questions and Answers", *by Jay G. Mitchell*
- Washington Bureau Reports • Newsletter

√R v. 56 1952

IN NORTHFIELD'S EXCHANGE

Exide-Manchex BATTERIES

Installation of 24-cell EME-13 Exide-Manchex Battery in main exchange of Northfield Telephone Company, Northfield, Vt.

Modern exchange building at Northfield with service men and equipment in foreground.

August 11, 1951, was a red-letter day in the annals of the Northfield Telephone Company's exchange. It was cut-over date for the new installation of their common battery dial office.

This progressive exchange, which serves 1200 stations in the important north-central section of the Green Mountain State, has a capacity of 600 lines, 500 of which are in service at present. Among their customers is the historical Norwich University, second oldest military college in the United States.

The battery is an Exide-Manchex . . . assurance of long, economical service. For in the Exide-Manchex you get:

POSITIVE OPERATION: Dependable performance for all telephone battery requirements—central office and private branch exchange equipment.

ADEQUATE RESERVE POWER for emergencies beyond normal needs.

LOW OPERATING COST: Extremely low internal resistance.

LOW MAINTENANCE COSTS: Water required about twice a year. No change of chemical solution needed during life of battery.

LOW DEPRECIATION: Sturdy, long-life construction, which includes the exclusive manchester positive plate.

GREATER CAPACITY in a given amount of space avoids over-crowding of equipment.

YOU GET ALL THESE FEATURES IN THE EXIDE-MANCHEX

- The *exclusive*, long-life manchester positive plate.
- Slotted plastic separators, impervious to chemical and electrical reaction.
- Plastic spacers for plate alignment.
- Latest development in molded glass jars.
- Heavy terminal posts with copper inserts for extra conductivity.

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia 2

Exide Batteries of Canada, Limited, Toronto

"Exide" and "Man hex" *Reg. Trade-marks U.S. Pat. Off.*

1888 . . . DEPENDABLE BATTERIES FOR 64 YEARS . . . 1952

Tech

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VERY MUCH ALIVE!

THE OLDEST RAYTHEON NOW IN SERVICE
RECTICHARGER*

EARN THESE BIG REWARDS

A NEW RECTICHARGER® (FOR YOUR COMPANY)
A $100 DEFENSE BOND (FOR YOU)

To demonstrate the remarkable service life and trouble-free performance of the Raytheon RectiChargeR, we want to find — the *oldest* RectiChargeR now in service. To make this search interesting and worthwhile to you and your company, we offer the following rewards:

1. **To the telephone company** owning and operating the Raytheon RectiChargeR with the *lowest serial number* reported, we will furnish in exchange a brand new RectiChargeR of the same capacity.
2. **To the individual** (plant maintenance chief or other responsible official) reporting the lowest serial number for his company, we will award a one hundred dollar United States Defense Bond.

Put yourself and your company in line to earn these handsome rewards. Check the name plates of all your Raytheon RectiChargeRs today. Enter the *lowest serial number* you find. Use the coupon below and be sure to give the name of your regular supplier. Do it today. No entry will be accepted postmarked later than March 31, 1952.

—HERE'S OUR OLD-TIMER—

RAYTHEON MANUFACTURING COMPANY
Waltham 54, Massachusetts

Please enter our oldest RectiChargeR in your "Lowest Serial Number Search".

Serial Number.....

My Name.....

Title.....

Company.....

Address.....

Our Supplier Is.....

Address.....

TE

Across The Editor's Desk

State telephone association conventions start again with the 1952 meeting of the Minnesota Telephone Association at St. Paul, Feb. 5, 6 and 7 at Hotel St. Paul. Later in February the Louisiana association meets at the Hotel Francis, Monroe, Feb. 22 and 23. The Minnesota convention is one of the key meetings of the state associations and for the immediate past years has set the pace for conventions by other state telephone associations.

• • •

Secretary JACK HALEY of the Texas Telephone Association has made arrangements whereby those attending their coming annual convention on March 10, 11 and 12 at the Gunter Hotel, San Antonio, can join other telephone folks in a visit to Mexico City after adjournment. If you are interested write J. B. Haley, Executive Secretary, Texas Telephone Association, 1014 Perry Brooks Bldg., Austin, Texas. Several trips of this nature have been made in past years that have proven most enjoyable.

• • •

W. R. KIMMEL, for the past 30 years a sales representative of the Kellogg Switchboard & Supply Co., was retired January 1. Bill is now a full fledged customer again as he purchased the Union Grove (Wisc.) Telephone Co. several years ago in preparation for his retirement. The change will not make much difference to Bill as he will continue in the business he loves and in which he has gained the respect of the telephone industry.

• • •

We hope to hear during 1952 that other nearby state telephone associations plan to hold joint state conventions with their neighbors. The joint annual conventions of the Missouri and Kansas associations will hold their 1952 meeting in May. Other groups using this method are the Washington-Oregon, New Hampshire-Vermont and the Rocky Mountain association of several states. There are many advantages to these joint meetings.

The National Telephone Magazine

Telephone Engineer and Management

JANUARY, 1952 VOL. 56, NUMBER 1

Editor, RAY W. SMITH • *Advertising Director,* ROY F. SMITH
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FRONT COVER

"Pole climbing is two-tenths of one per cent safer than clerking in a bank", says Rudy Imm, who trains construction crews for the Mountain States Tel. & Tel. Co. in Pueblo, Colo. Recently Imm started training his 1,300th man—without a single injury to any of the "students". Front cover photo shows instructors Henry Grgich and Imm showing Mountain States Tel. & Tel. Co. construction crew trainees how to set crossarms on 25-foot poles without accident. The training sessions are a round-the-year program for the Pueblo district of the company.—*(Pueblo (Colo.) Star Journal photo.)*

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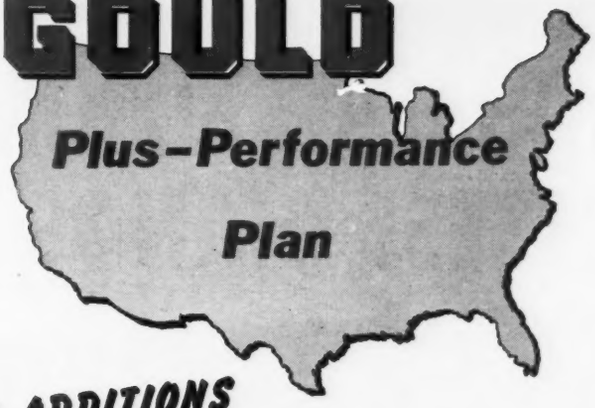
GOULD



REGULAR WATER ADDITIONS

ADD MONTHS TO BATTERY SERVICE!

The amount of water used by a battery indicates its general condition. That's why regular, systematic watering is so important to maximum battery service. The GOULD PLUS-PERFORMANCE PLAN gives you complete technical information, not only on how to establish a regular watering routine, but on practically every problem connected with storage battery use.

Comprising manuals, articles, specifications, bulletins, charts, graphs and forms, the GOULD PLUS-PERFORMANCE PLAN tells you how to select, charge and handle, maintain and determine the condition of your batteries. Use it consistently and you can improve your battery performance as much as 50%! All material is free. A request will bring descriptive booklet by return mail.

Gould Planté—
The Aristocrat of
Stationary Batteries

WATERING ROUTINE VITAL TO MAXIMUM STATIONARY SERVICE

As a rule, stationary batteries do not need water more than semi-annually and this period may even extend to a year before electrolyte levels drop below the low level mark. Always use distilled water and when adding, do not pass the high level mark as subsequent gassing during equalizing charges may cause cell tops to become wet. If electrolyte levels fall below the tops of the plates all such exposed areas become inactive, putting excessive loads on the submerged portions. Loss of battery life results. Furthermore, exposed portions of the wood separators tend to dry out and shrink—internal resistance increases and voltage during discharge is reduced.

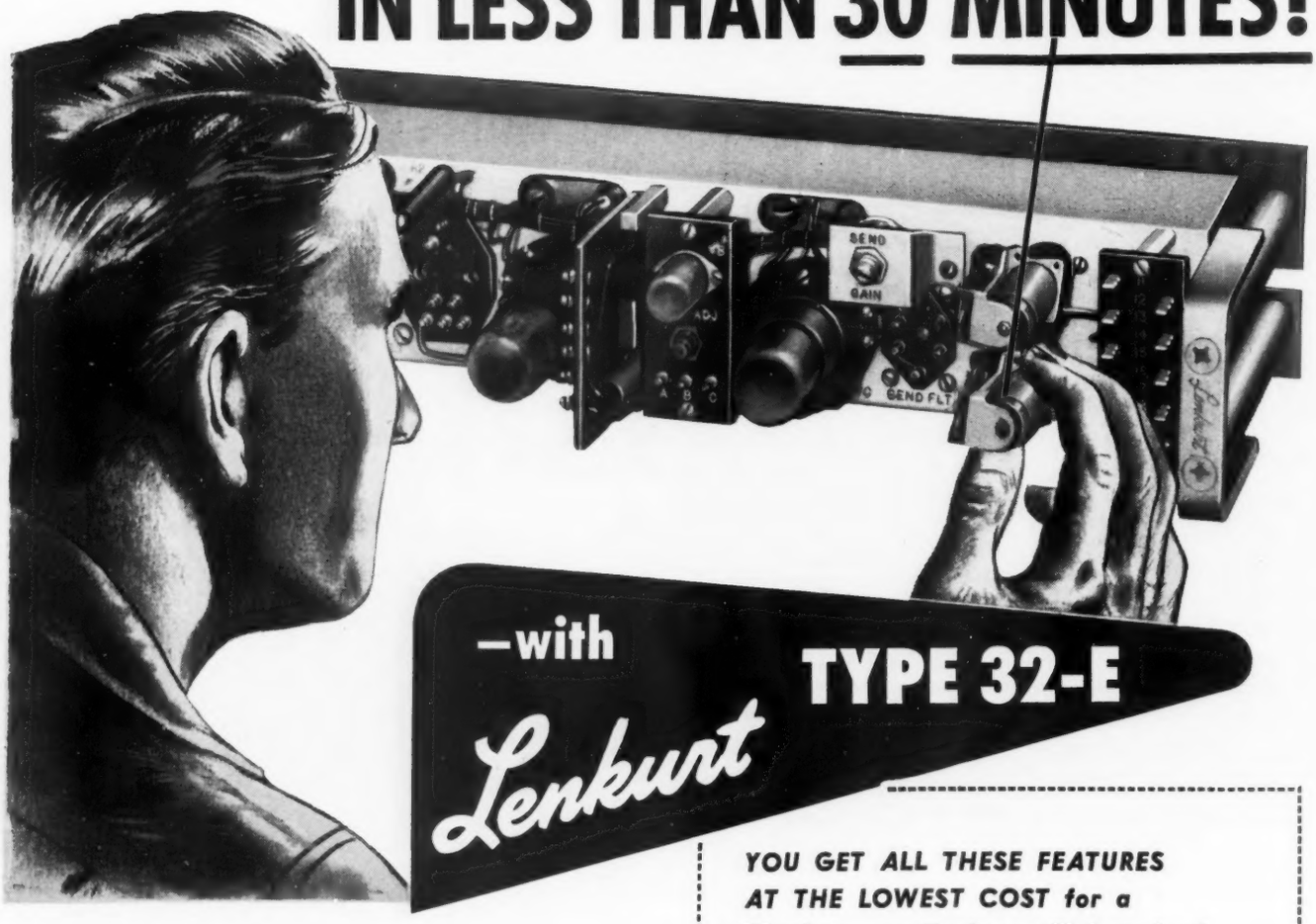
GOULD STORAGE BATTERIES

GOULD-NATIONAL BATTERIES, INC., TRENTON 7, NEW JERSEY

Always Use Gould-National Automobile and Truck Batteries

Convert toll circuits from

MANUAL TO AUTOMATIC IN LESS THAN 30 MINUTES!



—with Lenkurt TYPE 32-E

• AUTOMATIC ELECTRIC brings you the *only* long-haul, 4-channel carrier you can convert from manual to automatic dial operation! And the change-over is *easy*—for you can convert each terminal by merely changing eight relays—relays that plug in like radio tubes. What's more, that's only one of Type 32-E's many advantages! This recently improved open-wire system offers characteristics and features suitable for transcontinental service; yet it's so economical you can use it on short-haul installations.

Check the features at the right, then write for our illustrated folder No. 32EP4. When you get the full story you'll want to buy Type 32-E . . . just as many other companies are doing!

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AUTOMATIC ELECTRIC

Originators and Developers of the Strowger Step-by-Step "Director" for Register-Sender-Translator Operation . . . Machine Switching Automatic Dial Systems
Makers of Telephone, Signaling and Communication Apparatus . . Electrical Engineers, Designers and Consultants

Distributors in U. S. and Possessions: Automatic Electric Sales Corporation
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YOU GET ALL THESE FEATURES AT THE LOWEST COST for a "Performance-Engineered" Long-haul Carrier System . . .

1. Choice of carrier-frequency dialing, carrier-frequency ringdown, or voice-frequency ringdown operation.

2. Operation may be from C.O. batteries or A.C. mains.

3. Choice of 3 or 4 high quality channels and 6 frequency allocations to meet your exact requirement or specific problem. Type 32-E will coordinate with any long-haul, 3-channel system in the world.

4. "High-level" transmission—up to 24 dbm—gives better signal-to-noise ratio under difficult icing conditions. ("High-level" amplifier may be omitted for short-haul applications.)

5. Optional "locked-in" channel synchronization—that extra "plus" when FM voice-frequency-carrier-telegraph operation is required.

6. Loop gain of 45 db at 34 kc overcomes up to 45 db attenuation per repeater section.

7. Pilot channel level regulation automatically adjusts gain for varying line attenuation. (May be omitted for short-haul applications.)

NEWSLETTER
TELEPHONE ENGINEER

Fortnightly TELEPHONE ENGINEER ★ TELEPHONE ENGINEER AND *Management*
ON THE 1st OF EACH MONTH ON THE 15th OF EACH MONTH

NEWSLETTERS *on Alternate Weeks*

January 15, 1952

Dear Sir:

Modifying its proposed regulations regarding use of communications services for bookmaking purposes, which had included requirement that companies file lists of all applicants for service, Ohio Public Utilities Commission has ordered that companies receiving written notification from law enforcement agencies that service is being used illegally must discontinue the service "forthwith."

The four points in Ohio commission's order were: (1) each telephone or telegraph company shall refuse to install or furnish service "if it has good cause to believe" service will be used in furtherance of gambling; (2) companies have "duty" of investigating immediately if they have "reasonable cause" to believe that facilities are being used to further gambling; reporting their findings to commission & local law enforcement authorities; (3) copies of contracts for all private leased wire service must be furnished to commission & local authorities immediately following their execution; & (4) "upon receipt of written notice from any law enforcement agency that such agency has reason to believe such utility facilities & service are being used in furtherance of gambling, (the) company shall forthwith discontinue such service."

Action was in contrast to decision of FCC in Katz case that notice from law enforcement agency is not necessarily sufficient cause to discontinue service.

In hearings on Ohio commission's proposed rules, state's communications companies, including Ohio Bell Tel. Co., Cincinnati & Suburban Bell Tel. Co., Western Union Tel. Co., & several Independent telephone companies protested portions of proposals. It was emphasized that any order requiring lists of service applicants would be tremendously burdensome & would detract from companies' responsibility of providing service.

* * *

In case made rather complex by Florida laws dealing with jurisdiction of the state's Railroad & Public Utilities Commission, the agency has approved sale of property of Southern Bell Tel. & Tel. Co. in parts of four counties to Santa Fe Tel. Co., Rural Electrification Administration borrower, but rejected request that Southern Bell be permitted to discontinue service to its present subscribers in area.

At hearings, at which some subscribers protested substitution of Santa Fe service for that of Southern Bell, latter brought out that it made contract based on definite assurance of Santa Fe company that transaction was desired by people of area. Contract specifically provides that it is subject to affirmative approval by commission. Southern Bell said question of public interest involved in sale should be decided by commission.

Under Florida law, commission held, any telephone company can serve

any area without commission approval, although local franchise is necessary to serve municipality. It ruled, on discontinuance of service by Southern Bell, that it does not have authority to permit discontinuance of service by 1 company so that another can serve area. Commission did, however, authorize sale of Southern Bell's property in area not required to serve its present subscribers.

The commission brought out that, while stock ownership in Santa Fe organization is not absolute requirement for obtaining telephone service from REA borrower, it appears that number of persons who do get service as subscribers rather than members of corporation will be limited.

* * *

Wage Stabilization Board (WSB) in General Wage Regulation No. 19 gave approval to new health & welfare plans or modification of old ones. Benefits are temporary disability, hospital expense, surgical expense, in-hospital expense, & death benefits on group term basis, including accidental death & dismemberment benefits. Regulation outlines procedures under which these can be put into effect. Accompanying regulation is Resolution 78 establishing review criteria to be used by staff of WSB in determining whether given plan may be put into effect without approval or must be referred to WSB.

* * *

HIGHLIGHTS: -- West Coast Tel. Co., Everett, Wash., is considering installation of radio facilities on Black Cap mountain, to provide communications in Warner Valley, Summer Lake & Silver Lake, Ore., areas . . . Copake (N. Y.) Tel. Co. elected John Benedict Ackley pres. & gen. mgr., succeeding his father, John D. Ackley, who became vice-pres. . . . J. W. Carter, owner of Union Tel. Co., Smackover, Ark., announced $80,000 automatic conversion project nears completion.

Nicholas R. Marion retired from Rochester (N. Y.) Tel. Co. after 47 years service . . . Kenneth Jones, Moorhead, Minn., re-elected pres. of Buffalo River Tel. Co-op., Moorhead, Minn. . . . James Mutual Tel. Assoc., San Joaquin, Calif., started work on new exchange buildings in San Joaquin & Tranquility. Company plans conversion to automatic operation . . . Mr. & Mrs. Dee Cole purchased Lone Oak, (Tex.) Tel. Exchange. New owners plan modernization.

$167,000 dial system expansion program for Lyford, Roma & Rio Grande City, Tex., was announced by Southwestern Associated Tel. Co. . . . Albany (Minn.) Mutual Tel. Assoc. announced membership now totals over 400 . . . Millstadt (Ill.) Tel. Co. is completing automatic conversion, according to manager Oscar Krick . . . Stony Creek (N. D.) Mutual Aid Corp. elected Reuben Brakken, Pres. & John Kellar, vice-pres. . . . Kellogg Switchboard & Supply Co., Chicago, Ill., announced plan to devote portion of its 1952 advertising budget to selling of Americanism. First of ad series appears in this issue . . . Redwoods Tel. Co., Cave Junction, Ore., plans installation of automatic system at Selma & Deer Creek exchanges . . . Southwestern States Tel. Co., Brownwood, Tex., completed automatic system at Gladewater, Tex.

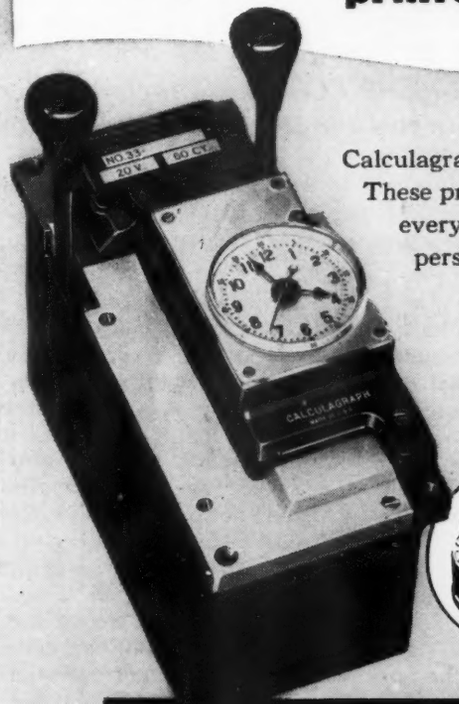
Ray Smith

Ray W. Smith, Editor

If your toll call revenues depend on PENCIL work!

CALCULAGRAPH

is one sure way to collect all the revenue due with accurate, automatically calculated, printed toll time records



Calculagraph printed elapsed time records are accurate to the second. These precise printed records assure collection of all the revenue due every toll call. Automatically computed, they relieve switchboard personnel of time-consuming detail work that slows switchboard service. Calculagraph is the engineered, revenue-vital equipment that no exchange—large or small—can afford to overlook. Available for switchboard or portable mounting, they are fully described in four illustrated catalogs. Write for yours, now, on company letterhead.

COMPLETELY ACCURATE TO THE SECOND
AUTOMATICALLY COMPUTES ELAPSED TIME
PRINTS THE RECORD FOR PERMANENT FILING
FACILITATES SWITCHBOARD SERVICE
OPERATES SILENTLY

CALCULAGRAPH COMPANY · INC

HARRISON • NEW JERSEY

THE STANDARD FOR ACCURACY SINCE 1892

Insto-Gas
T M REG U S PAT OFF

FURNACE
For Cable Splicers

Melts 40 pounds of metal in six minutes

•

Operates in all kinds of weather

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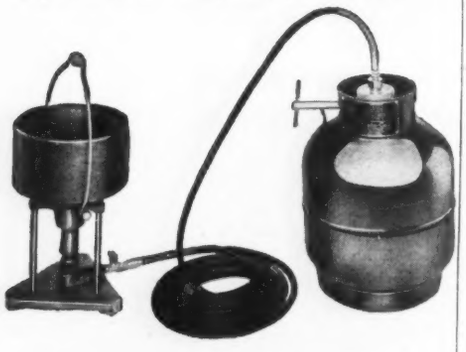
Lights Instantly — Won't Blow Out

Also available in floor type furnace—With 50 ft. hose can be operated on splicing platform



INSTO-GAS TORCHES

These instant lighting torches are made in five sizes for all kinds of flame soldering and finishing splices.

•

Listed by both Underwriters and Factory Mutuals Laboratories.

Ask your telephone distributor for Insto-Gas or send coupon for descriptive folder

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Send information on Insto-Gas to

NAME.....

ADDRESS.....

Insto-Gas Corporation · Detroit 7, Mich.

WASHINGTON

Washington Bureau Reports

By Roland Davies and Fred Henck

Important issues awaiting FCC action include interstate toll telephone rate revision, illegal use regulations and several policy matters.

A FULL PROGRAM of regulatory plans, a crowded docket of pending and partially-disposed cases, and a minimum staff resulting from budget limitations and shifts of personnel to private industry and national defense agencies, are expected to result in several significant trends in FCC common carrier activity during 1952.

The heavy load of cases which have not gone to hearing, planned regulatory moves, and activities which require Common Carrier Bureau staff work, particularly in the telephone and international telegraph fields, mean that the FCC will have to "take them as they come" and will be unable to move as rapidly in some fields as commission officials, and in many instances the parties to cases, would like to have it done.

Institution of new proceedings probably will be limited to those of primary importance, and those required under the Communications Act and FCC regulations, because of the sheer impossibility of moving ahead in some areas where the Commission might, under more normal circumstances, take the initiative.

Petitions and applications without pressing time elements or deadlines must await their turns, until the FCC Bureau staff is able to take them up. This results not only from the weight of major policy cases, but also from the steady stream of applications which do not present policy questions but must be acted on rather promptly because of time elements or plans to provide needed service.

As 1952 begins, among the most important issues awaiting early FCC action involve interstate toll telephone rate revision, illegal use regulations and racing news questions affecting both telephone and telegraph service, and several policy matters in the international telegraph field.

Awaited in the immediate future is the filing of the American Telephone & Telegraph Co. of revised interstate toll rate schedules, particularly over

short-haul routes, to reduce interstate-intrastate toll rate disparities. It is expected by FCC sources that developments will occur in this field during January.

Also probably coming under FCC study will be the consolidated corporation tax return to be filed by the American Telephone & Telegraph Co. and the Associated Bell System companies, in which A. T. & T. owns substantially all the stock, under the revised federal tax statutes. The Commission is expected to analyze the return from the standpoint that the tax benefits obtained through the consolidated return are distributed equitably among the Bell System companies involved.

Feb. 1 is the deadline for two major facets of overall bookmaking and illegal use problems—filing by A. T. & T. and the Chesapeake & Potomac Telephone Co. of revised tariff regulations resulting from the Commission's decision in the Katz case, and effectiveness of the Western Union Telegraph Co.'s tariffs denying use of private line service for racing news to all users except newspapers, press associations, and licensed radio and television stations.

It is thought that FCC action on the Western Union tariffs may hinge partially on the outcome of its Katz ruling. A. T. & T. and C. & P. have 20 days following the Dec. 21 issuance of the order to seek reconsideration by the FCC. Another alternative, if it is decided to contest the FCC's findings, would be a court appeal. The legal situation surrounding Western Union's tariffs appears to be different from that involved in its recently effective tariffs prohibiting acceptance of wagering messages and money orders, since gambling is prohibited by the laws of 47 states, but not by federal statute.

Although it may safely be assumed that the tariffs of other Bell System companies will be affected if the FCC order in the Katz case results in a change in C. & P. tariffs, there is not expected to be any development in

(Please turn to page 62)

PERSPECTIVE

IF ADVANCE reports are correct, the average share of federal spending in fiscal 1953 for each American man, woman and child will be roughly $548.38.

In this day of record spending, record taxes and record earnings of American workers, another "all-time high" isn't too impressive.

You get the same feeling looking at that $548.38 figure as you get looking at the General Sherman tree in Sequoia National Park. It is big, to be certain, but so are all the other trees around it. You can't get the perspective.

To help you get the proper perspective of this spending figure, we would like to show you a few figures. They are all based on Treasury and Census Bureau figures. No jittering. No butterfly statistics. We are just taking the government's word for it.

Here they are:

☆ The Per Capita Share Of Federal Spending Just 52 Years Ago Was $6.85.

☆ The Per Capita Share Of Federal Spending Just 42 Years Ago Was $7.54.

☆ The Per Capita Share Of Federal Spending Just 32 Years Ago, Shortly After World War I was $60.40.

☆ The Per Capita Share Of Federal Spending Just 22 Years Ago Was $27.96.

☆ The Per Capita Share Of Federal Spending Just 12 Years Ago Was $68.16.

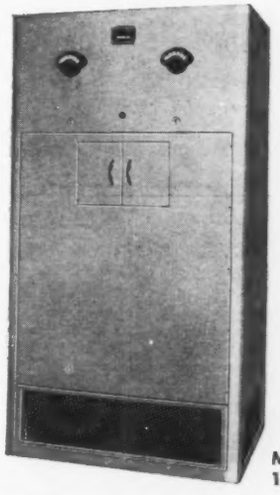
☆ And Your Share Of Federal Spending Next Year Will Be About $548.38.

—Reprinted from "BUSINESS ACTION"
Published Weekly By The Chamber of Commerce of the United States.

As a service to readers, extra copies of this feature are available. Price postpaid, ten or more up to 100, two cents each.—Larger quantities, one cent each, Address Reprint Editor, Telephone Engineer Publishing Corp., 7720 on Sheridan Rd., Chicago 26, Ill.

FLOTROL

SENSES THE NEED FOR CURRENT



Model 10KB

AND SUPPLIES IT!

It's almost unbelievable, the way the FLOTROL output keeps up with the load current—keeps your batteries fully charged—keeps your exchange voltage right on the dot. What's more, it does all this without the use of any moving parts, vacuum tubes, marginal relays, or the like.

If you're planning to replace or add to your charging facilities, don't overlook FLOTROL'S many advantages. Write for Bulletin 160 for complete information on single phase models, from 1/2 ampere to 24 amperes, Bulletin 161 describes three-phase models from 25 amperes to 200 amperes.

LORAIN PRODUCTS CORPORATION
1122 F STREET LORAIN, OHIO

FLOTROL PARTNERS IN DEPENDABILITY SUB-CYCLE

New Year's Resolutions Just About Junked?

Here's One You Can Make Right Now and Keep

The charter of human liberty, our Bill of Rights, was obtained at a high price. A voice in our government, freedom of worship, freedom of speech, and all the freedoms of human aspiration did not come into being by accident. They were achieved through struggle, suffering and sacrifice.

Communism is a most sinister and diabolical conspiracy aimed at destroying the Constitution of the United States and substituting therefor a combination of outside force, internal fifth column activities, and a slave state that would dominate and control everyone and every enterprise.

Resolve to: Read the Bill of Rights to yourself *NOW*— then read and explain it to your employees.

KELLOGG SWITCHBOARD AND SUPPLY COMPANY
Established 1897
6650 SOUTH CICERO AVE., CHICAGO 38, ILLINOIS

Send for your free copy of the Bill of Rights (appearing on opposite page) suitable for framing. This is beautifully reproduced in black and gold on a Waycroft Text cream colored paper stock. Write to Dept. 2-A

The Bill of Rights

Amendments 1 to 10 of the Constitution of the United States.

Proposed and approved at the first session of Congress in 1789. Adopted by the required number of State Legislatures under Article V of the Constitution and declared in force Dec. 15, 1791.

ARTICLE I

Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; or abridging the freedom of speech, or of the press; or the right of the people peaceably to assemble, to petition the government for a redress of grievances.

ARTICLE II

A well-regulated militia, being necessary to the security of a free state, the right of the people to keep and bear arms, shall not be infringed.

ARTICLE III

No soldier shall, in time of peace, be quartered in any house without the consent of the owner, nor in time of war, but in a manner to be prescribed by laws.

ARTICLE IV

The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated, and no warrants shall issue but upon probable cause, supported by oath or affirmation, and particularly describing the place to be searched, and the persons or things to be seized.

ARTICLE V

No person shall be held to answer for a capital, or otherwise infamous crime, unless on a presentment or indictment of a grand jury, except in cases arising in the land or naval forces, or in the militia, when in actual service in time of war or public danger, nor shall any person be subject for the same offence to be twice put in jeopardy of life or limb; nor shall be compelled in any criminal case to be a witness against himself, nor be deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use without just compensation.

ARTICLE VI

In all criminal prosecutions the accused shall enjoy the right to a speedy and public trial, by an impartial jury of the State and district wherein the crime shall have been committed, which district shall have been previously ascertained by law, and to be informed of the nature and cause of the accusation; to be confronted with the witnesses against him; to have compulsory process for obtaining witnesses in his favor, and to have the assistance of counsel for his defense.

ARTICLE VII

In suits at common law, where the value in controversy shall exceed twenty dollars, the right of trial by jury shall be preserved, and no fact tried by a jury shall be otherwise re-examined in any court of the United States, than according to the rules of the common law:

ARTICLE VIII

Excessive bail shall not be required, nor excessive fines imposed, nor cruel and unusual punishments inflicted.

ARTICLE IX

The enumeration in the Constitution, of certain rights, shall not be construed to deny or disparage others retained by the people.

ARTICLE X

The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people.

COMPLIMENTS OF

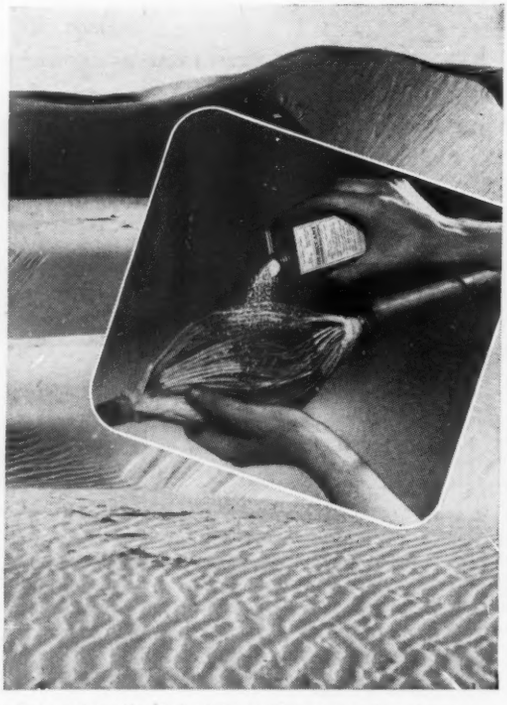
KELLOGG SWITCHBOARD AND SUPPLY COMPANY, CHICAGO

SUPPLIES OF Proven Dependability

• Shipment of guaranteed line supplies made from distribution center nearest you . . . Kellogg's warehouses located in Chicago, Kansas City, Dallas and San Francisco.

The following nationally-known manufacturers of supplies for the independent telephone field are participating in the 1952 Kellogg Co-Operative Campaign.

American Creosote Works, Inc.
American Structural Products Co.
Ansonia Electrical Company
Bishop Manufacturing Company
Boston Woven Hose & Rubber Co.
Churchill Cabinet Co.
Continental Cross-Arm Co.
Copperweld Steel Company
General Insulated Wire Works, Inc.
Gould-National Battery Inc.
W. A. Hammond Drierite Company
Indiana Steel & Wire Company
Kester Solder Company
Lorain Products Corporation
T. J. Moss Tie Company
National Carbon Company
A Division of Union Carbide and Carbon Corporation
National Telephone Supply Co.
Newman Manufacturing Co.
Paragon Electric Company
Ray-O-Vac Company
Raytheon Manufacturing Co.
M. M. Rhodes & Sons Company
Schauer Manufacturing Corp.
Vulcan Electric Corp.
Weller Electric Corp.



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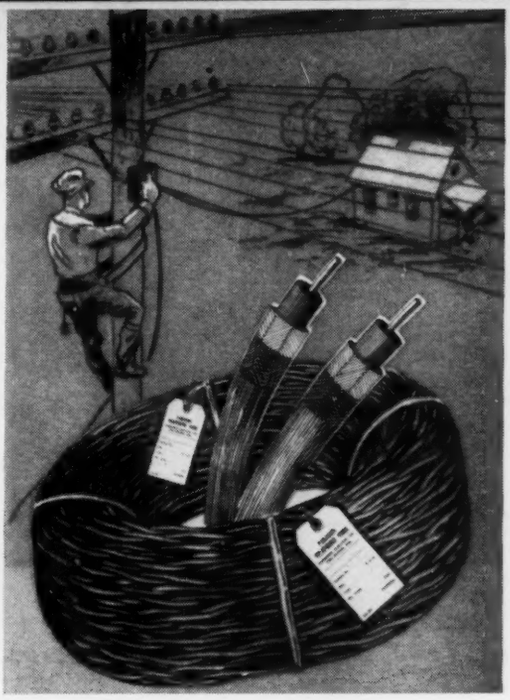

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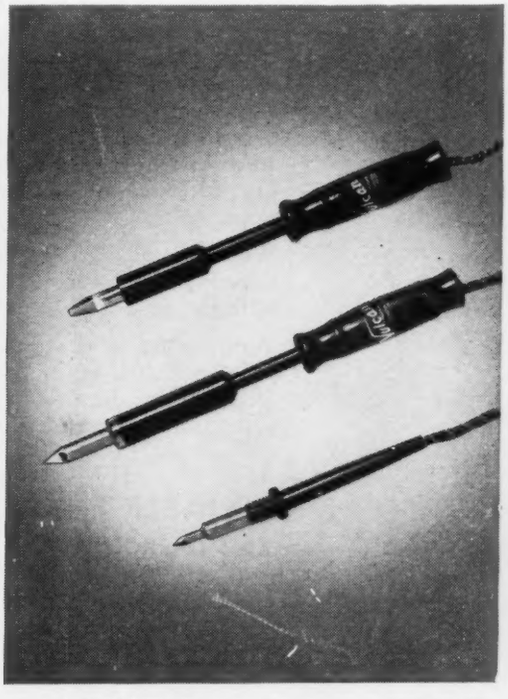

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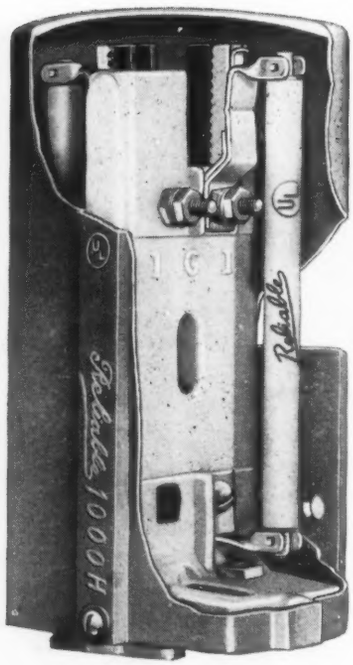
FIELD OPINION IS IMPORTANT, BOSS... IT'S SOLIDLY FOR THE '1000'



Specialists . . . the men in the field vote to a man for the RELIABLE "1000"!

The evidence is right here in my hand and it was studied from every angle. The "1000" looks like quality, works like quality and has protection to spare.

Every lineman likes the ample space for terminating necessary wires inside the rigid, seamless aluminum alloy housing. And you will appreciate the value of the one-piece glazed low-absorption porcelain — the famous RELIABLE P-495 self cleaning saw tooth discharge blocks — phosphor bronze spring clips — heavy silicon bronze studs and nuts — and the aluminum mounting bracket, all under the UL label of approval.

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Judging by field standards, there can be only one verdict. You can depend on RELIABLE for the best in station protection — just standardize on the catalog number one thousand (1000).

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GENERAL SPECIFICATIONS — STANDARD TYPES

CATALOG No.	FUSE No.	AMPERES	FUSE	SIZE INCHES
*1000	55L	7	CERAMIC	5¾ x 3½ x 2¼
*1000H	77L	7	CERAMIC	6½ x 3½ x 2¼
1000F	27L	7	CERAMIC	6½ x 3½ x 2¼
Shipping weight 2 lbs.				

*Listed by Underwriters Laboratories

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Telephone Protective and Terminal Equipment for All Station, Line and Central Office Needs.

OVER 45 YEARS SERVICE TO THE TELEPHONE INDUSTRY

KEEP YOUR COSTS DOWN *on rural extensions*

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IS SAVING MONEY ★

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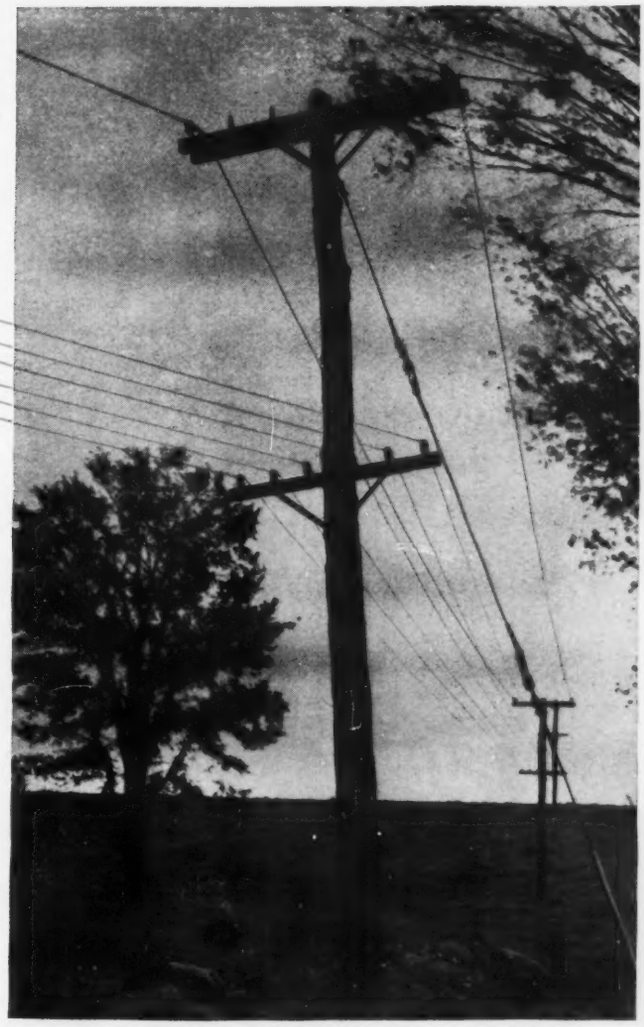

★ STORM REPAIRS AND OTHER HIGH MAINTENANCE COSTS ARE PRACTICALLY ELIMINATED

Twenty-two years of snow and ice experience have convinced Manager M. E. Wheeler of the Springfield Local Telephone Company, Springfield, Vermont, that the permanent high strength of Copperweld* Line Wire really pays off in lower costs.

Mr. Wheeler states, "For many years, frequent snowstorms and freezing rains had caused repeated damage on our company's lines, resulting in extremely high maintenance expense. Searching for a solution to this costly problem, we purchased 4 miles of Copperweld Line Wire in 1929. So successful and economical was this trial installation that today, our entire outside plant is 100% Copperweld. Repairs and service interruptions have been practically eliminated.

"Along with the necessary ruggedness to resist heavy ice and wind loads, our company gained these Copperweld advantages: excellent voice transmission characteristics—complete protection against corrosion —and permanent high strength that permitted us to string long spans ranging from 150 to 400 feet with savings in poles, accessories and construction costs."

Because Copperweld offers the combination of long life, rugged strength, superior service and extremely low maintenance costs, this company plans to continue using Copperweld Line Wire in its future expansion program. Why not follow this example and be assured of dependable and economical performance.

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COPPERWELD STEEL COMPANY Glassport, Pa.

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UNLIKE the age-old problem of growing youngsters (and many old type telephone systems) North "All-Relay" Automatic Exchanges can grow, and grow, and grow, without embarrassing interludes of too little or too much equipment. With a North system you do not have to buy a suit several sizes too large for current needs to avoid being caught with your plants too short in a few years.

Once a North system is engineered for your community, you can easily add ten lines or add a hundred, as your particular situation demands. That is because the initial North engineering is based upon sound logistics of system-to-population expansion . . . AND because the North strip jack-in method of adding facilities can be handled without additional plant engineering.

The smart way to insure your future earnings keeping pace with the growth of your opportunities is to make certain that the size and cost of your system shall always be a neat and comfortable fit . . . by specifying . . .

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THE NORTH ELECTRIC MANUFACTURING COMPANY

Originators of **ALL RELAY** *Systems of Automatic Switching*

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EDITORIAL

The Telephone Business Becomes Pacemaker For Industry

RECENTLY A LARGE investment banking institution made a comprehensive survey of the telephone business in this country. One of the important conclusions reached by that firm from this study was that the telephone industry has been the unquestioned pacesetter in the nation's industrial growth since World War II.

This may be no news to many harassed telephone executives who are working overtime trying to obtain the money, materials and men necessary to meet the seemingly insatiable demands of the public for more and more telephone service. But many members of even the telephone fraternity itself may not have in mind the extent to which the industry has grown during the past five or six years.

That growth has consisted, of course, of a tremendous increase in toll and similar facilities, as well as a very large increase in exchange facilities. The simplest method of measuring this growth is by a comparison of the number of telephones in service.

As to that, we can start with this simple statement: During the five and one-half years from the end of 1945 to midyear 1951 (later figures are not yet completely available) the number of telephones commercially in service in the United States increased by 60%!

During that period the number of these telephones, both Bell and Independent, jumped from about 27,800,000 to about 44,200,000—a net gain of around 16,400,000!

The fact is that the number of telephones commercially in service in the country has practically doubled in the past ten years, which period includes those war years during which there were severe restrictions on installations.

The increase in toll business has also been tremendous. It can be judged by the statistics of the Classes A and B Independent telephone companies. For the year 1940 their net tolls averaged $8.85 per station. For 1950 the average was $18.98 per station—an increase of 115%!

And there are still some hundreds of thousands of people waiting for telephones, plus nearly two million applicants for "upgrading" of their service, such as change from party-line to private lines.

What is causing this unprecedented demand for telephone service?

Undoubtedly there is a combination of reasons for this situation.

These are "boom" times. Practically everybody has money, and everybody wants all the conveniences possible.

The population of the country is growing rapidly. The number of new houses built and of new homes established is tremendous.

The growth of the "telephone habit" has been without precedent.

And the increase in the charges for telephones has been relatively low, compared with increases in the prices of other things. The telephone is still cheap, compared to the costs of other things.

It seems to us that there are, in this whole situation, two facts of considerable significance to the telephone industry.

One is that this unprecedented demand for telephone service is likely to continue as long as there is substantial continuance of present-day economic conditions in the country. This means, we think, at least as long as the rearmament program continues.

The other is that, by and large, the telephone industry as a whole is doing all it can to meet the situation. The fact that it has out-stripped all other industry in growth is strong evidence of that.

Besides money, materials and manpower, there is another element the industry must have—and that is time.

This is something the industry itself must help the public realize.

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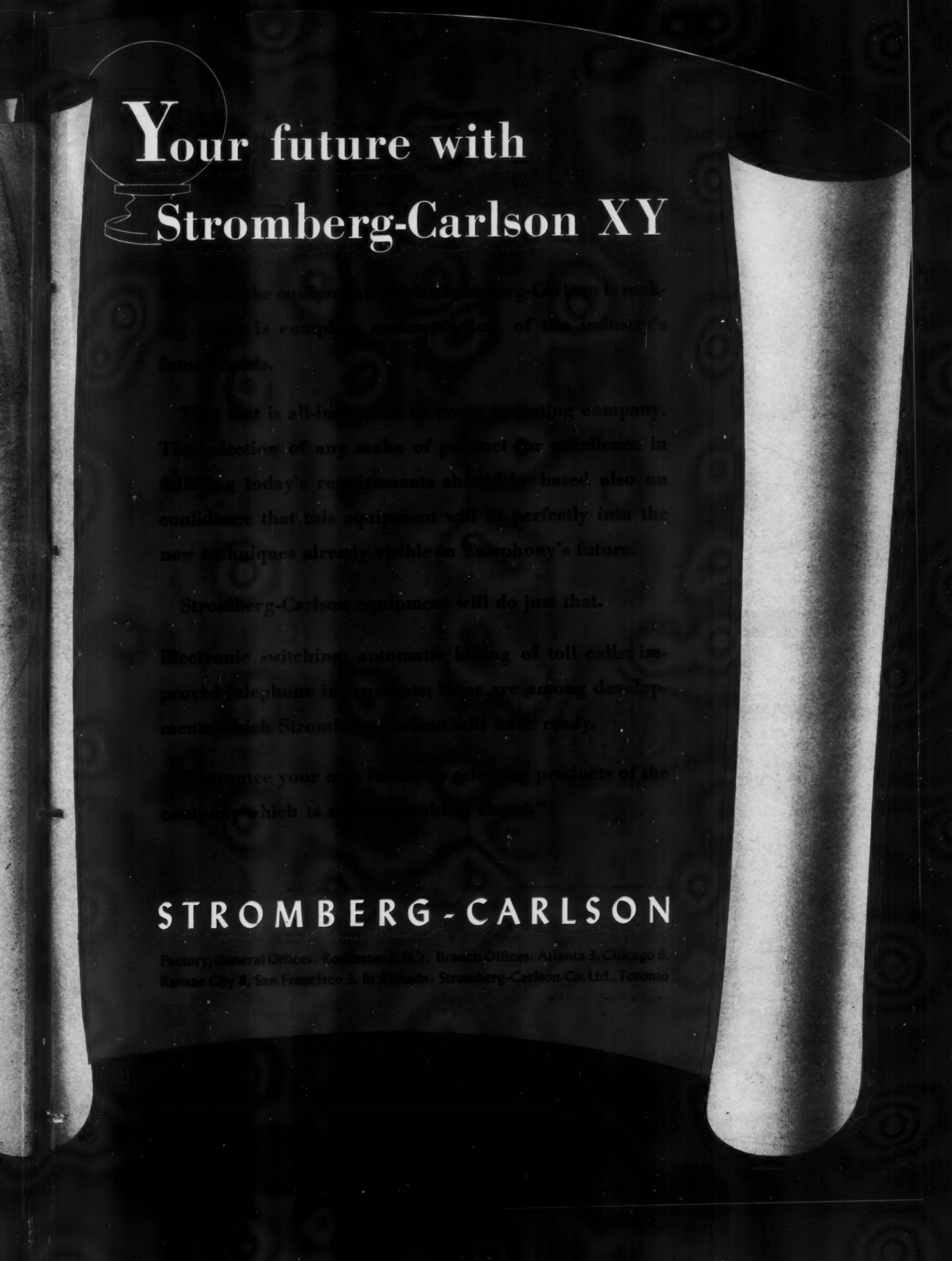
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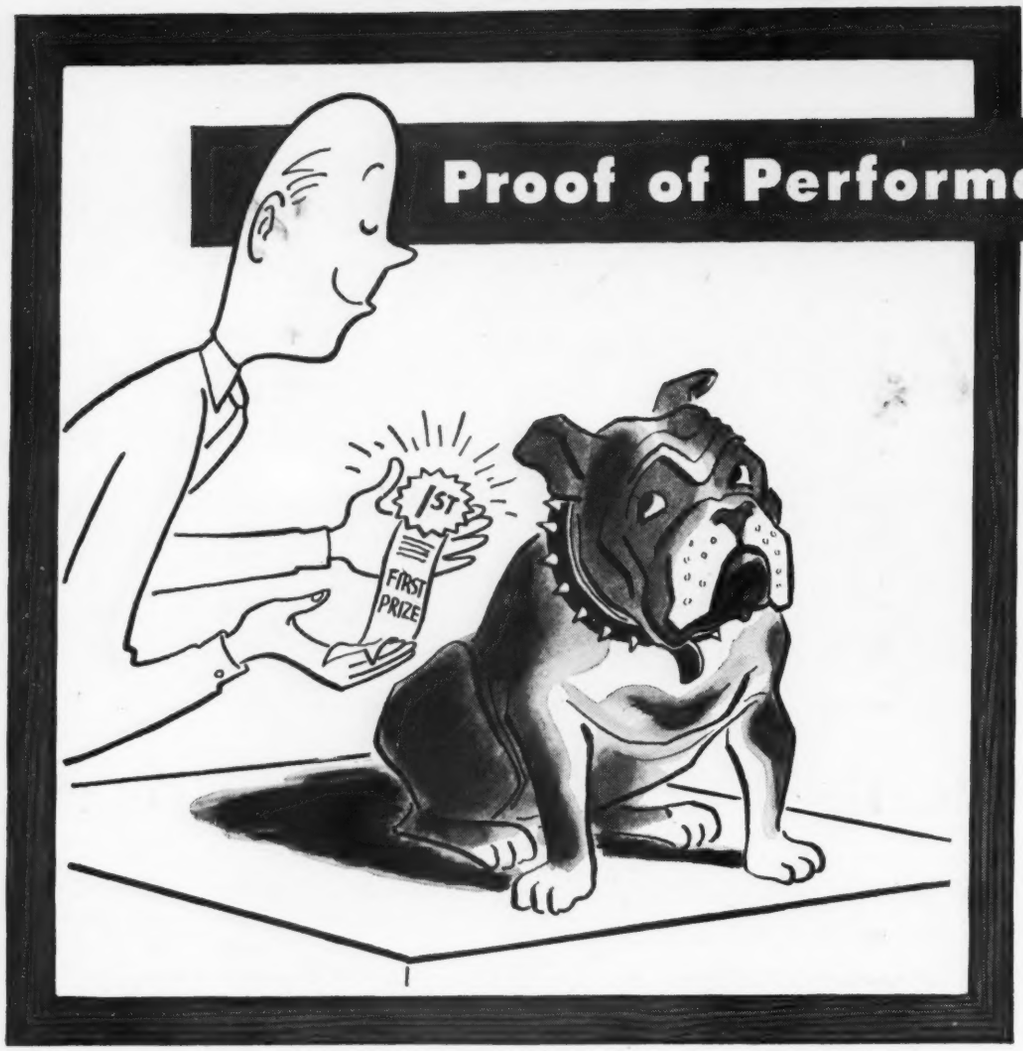

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"Shortages of needed materials hamper industry's efforts to meet service demands".

Independents Face Major Problem

Many companies caught in squeeze, with State Commissions ordering expansions to meet service requests while materials are not available to comply — plant margins exhausted, but needs increased by industrial expansion.

THE PROBLEMS confronting Inpendent telephone companies in seeking to meet demands for telephone service while hampered by shortages of needed materials are reflected in a survey just completed of 20 representative companies, from which data has been gathered as a means of acquainting the government's mobilization agency officials with the need for greater allotments of the three controlled materials to the communications industry to fulfill defense and defense-supporting services.

Although detailing the tremendous increase in telephone service since 1946, the survey, according to TELECOMMUNICATIONS REPORTS, demonstrates that operating telephone companies have still not been able to keep pace with demand and the backlog of held orders and requests for upgrading of service is growing, with this situation to become even more serious during the coming year.

By Roland Davies
Editor
TELECOMMUNICATIONS REPORTS

Many telephone companies, the survey shows, are caught in a squeeze, with state utility commissions ordering expansions to meet service requests on the one side and the companies, despite every effort being made in the way of conservation and substitution of materials in critically short supply, finding it impossible to comply because of the lack of essential materials.

In some instances, all plant margins have been exhausted and although statistics show a need for expansion, they don't tell the whole story as far as held orders and upgrade requests are concerned, the companies surveyed report, due to many people in need of telephone service failing to apply for service because they are acquainted with the already existing waiting lists.

Of the companies included in the survey, all reported that expansion of industrial activity in the areas served, with the accompanying development of housing projects, has added to their problems. Establishment or reactivation of military centers and increased production demands placed upon already located manufacturing plants or new firms mushrooming up around the country to turn out equipment required in the defense build-up has created a related demand for more telephone service that has not been fully recognized by those officials charged with the preparedness program, the Independent companies point out.

Statistics furnished by one of the companies included in the survey highlights the problems facing all of them. Despite the addition of $82 million in net plant investment since 1946, with a net gain of 265,000 telephones during that period, the company estimates that unfilled applications on file for facilities on April 1, 1952, will total 29,000, and requests for upgrading service will have risen to about 17,800 at that time. Last Oct. 31 this company had approximately 10,000 held orders.

The company, whose territory population has increased 72% from 1940 to 1950, serves an area that embraces

at least nine military installations and numerous plants engaged in vital defense production. Telephone service and demand in 1951 were at a much higher rate than in the previous year. In 1950, the increase in station and trunk demand was 33,170; in the first six months of 1951, the demand was over 18,592.

This company has reported that 17,500 new residential units were completed and occupied in its territory during the last half of 1951—not counting emergency housing—and estimates that 20,000 residential units will be started in the coming months. These coupled with expansion of military bases and the known assignment of huge contracts to plants in the area by the Defense Department make continued growth certain.

"Telephone companies attempting to meet demands for 'world's best' telephone service are hampered by shortages of needed materials."

All Companies Have Similar Problems

OTHER COMPANIES contacted in the survey replied with stories of their problems which varied only as to statistics or of added difficulties, such as state commissions demanding expansion of facilities to approach service demands. Several companies also related that on top of controlled material allotments being short of requirements, they were unable to "cash" their allotment checks with suppliers.

Briefly, other companies reported the following situations:

Company A: Despite a 46% increase in plant investment since 1946, the facilities of the company to provide service are seriously overloaded. Since 1946, the company has added 52,000 stations, but has unfilled orders for service of 12,765, and has 640 toll circuits in service against a demand of 685. The planned expansion of military bases, the establishment of new industries and the enlargement of others will bring about large housing developments with accompanying service demands.

Company B: Consisting of several individual operating companies, it reports that facilities are inadequate to take care of present and anticipated demands growing out of the mobilization effort. At the end of 1951, there were requests for 152,800 subscriber lines against 100,800 available, and toll circuit demands of 750, against 723 available. Although $23 million has been spent since 1946, the company has 7564 held orders in its areas which serve key military and defense-supporting establishments.

Company C: In 1951, subscriber lines required were 15,250 against 9,750 available, it was reported. Due to rapid growth in the area, company facilities are inadequate to meet demands for service in urban and rural areas, particularly since demands have been expanded in recent months by activation of military projects. Substantial installation of cable and open wire plant along with central office equipment will be required before an approach to normal service can be made. Special problems include service to a veterans hospital and an Air Force base, with accompanying housing projects in the area, which are now being served with about 10% of telephone facilities required.

Company D: Of its 222 exchanges, facilities are overloaded at all but a few, with a total of 6000 held orders. Of this number, 1300 held orders are for lack of cable pairs, while there are some 4000 held orders in the rural field. The company has cited the need for additional cable and open wire facilities to take up some of the gap between supply and demand in its area in which is located a huge power plant for the Atomic Energy Commission.

Company E: At the present time, the company has 7266 held orders. During the three-year period, 1950-52, the company planned an expansion program of $10½ million and has completed $6 million of this investment. Although 12,000 stations have been added, held orders are increasing. This tremendous demand is reflected in an order of the state public utility commission for the company to improve service; to unload party lines in rural areas to about 10 parties to a line; to provide service to those not now receiving service; and to provide more adequate service to present subscribers. The commission has directed the company to report every 90 days on its accomplishments under this program for which there is needed considerable additional expansion of cable and wire facilities along with installation of central office equipment.

Company F: Serving an area that embraces many vital defense industries now in the midst of expansion as well as a large agricultural area, this company now has about 3100 held orders. Subscriber lines required to provide adequate service at the end of 1951 were placed at 19,574, with only 18,474 available. Toll circuits required are 690 against 610 available. These figures projected for 1952 are 19,794 and 18,794 for subscriber lines, and 700 and 631 for toll circuits. Substantial extensions and additions to outside plant and central office equipment are required to provide necessary facilities. The state commission in this company's case has also requested the company to provide additional and improved service. In addition to already-existing demands, the company is faced with a huge manufacturing plant expansion program that will require substantial additions to present private branch exchanges and a complete cable distribution program, and the subsequent employment increase will create additional demands.

Company G: At the end of 1951, the company required 22,457 subscriber lines, against 20,777 available. Toll circuit requirements were 591 against 528. The same figures projected for 1952 are 24,637 against

(*Please turn to page* 48)

MODERN Central Office MAINTENANCE Practices

Section VII-B of Mr. Reed's article concludes a discussion of the operating principles and construction of storage cells and methods of measuring specific gravity of cell electrolyte, maintaining electrolyte level and obtaining distilled or purified water.

By John S. Reed

Lincoln Telephone & Telegraph Co., Lincoln, Nebraska.

DURING THE discharge cycle, the specific gravity of the electrolyte drops as the acid is converted into water and lead sulphate. When the cell is placed on charge, the specific gravity rises as the water is changed back to acid and lead peroxide. At the end of the discharge cycle, the specific gravity is at its lowest level, while at the finish of the charging cycle, the gravity is at its highest point. There is a close correspondence of the change in specific gravity with the rise and fall of the cell voltage as indicated in *Figure* 89. The condition of the battery throughout the cycle thus can be accurately determined by measuring its specific gravity at regular intervals.

Specific gravity is defined as the ratio of the weight of a unit volume of electrolyte to that of an equal volume of water. Thus if a unit volume of water weighs one pound, an equal volume of pure concentrated sulphuric acid weighs 1.835 pounds. The specific gravity of the acid is then 1.835/1 or 1.835. Because the lead-acid cell cannot function properly unless the sulphuric acid is diluted with water, the specific gravity of the cell electrolyte is much lower than this value. The electrolyte of a new, fully charged central office battery has a specific gravity of 1.200 to 1.250 at 70°F. This represents 2.36 parts of water to 1 part of acid by weight for the lower value compared to 1.76 parts of water to 1 part of acid for the higher value. In hot climates, where the temperature is 90 degrees or higher much of the time, a lower maximum specific gravity (1.170) will result in maintaining a long service life of the central office battery. No appreciable reduction in the rated capacity of the battery will result from this decreased specific gravity when the plates have attained their nomal formation after several years in service.

As explained previously, the specific gravity of the electrolyte is an accurate measure of the condition of the lead-acid storage cell. By taking the highest specific gravity point at the end of the charging cycle as a standard, subsequent readings can be compared with this standard to determine how completely the battery is charged or discharged. Any abnormal lowering of the specific gravity or the failure of the gravity to rise to its normal point on charging is an indication of a cell defect which calls for an investigation to determine the cause.

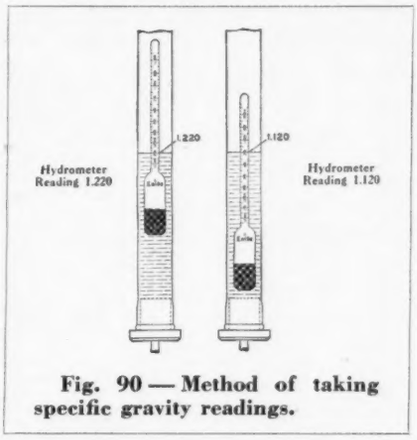


Fig. 90 — Method of taking specific gravity readings.

Specific gravity is measured with a hydrometer graduated in points sp. gr., one point being equal to .001. When immersed in electrolyte, the hydrometer float will sink to a point where the level of the electrolyte coincides with one of the divisions on the hydrometer stem or nearest to it. The method of making this reading is shown in *Figure* 90.

A syringe hydrometer is employed for taking specific gravity readings of electrolyte in closed type cells. A rubber nozzle on the end of a glass tube enables the syringe to be inserted through a vent hole in the closed top of the cell. The electrolyte is drawn into the tube by means of a rubber squeeze bulb as shown in *Figure* 91. Sufficient electrolyte is drawn to float the hydrometer freely without touching top or bottom of the tube while the reading is being taken. Afterwards, the electrolyte is returned to the cell by squeezing the bulb and then lifting out the nozzle to allow the remaining liquid to drain out.

In large battery installations, the syringe hydrometer may be of a type designed to fit in the vent hole in the cover of the closed cell as illustrated in *Figure* 92. The rubber squeeze bulb has a hole in it which expels the air inside when the bulb is squeezed. Just before releasing the bulb, the hole is covered with the thumb, so that, as the bulb expands, electrolyte is sucked into the

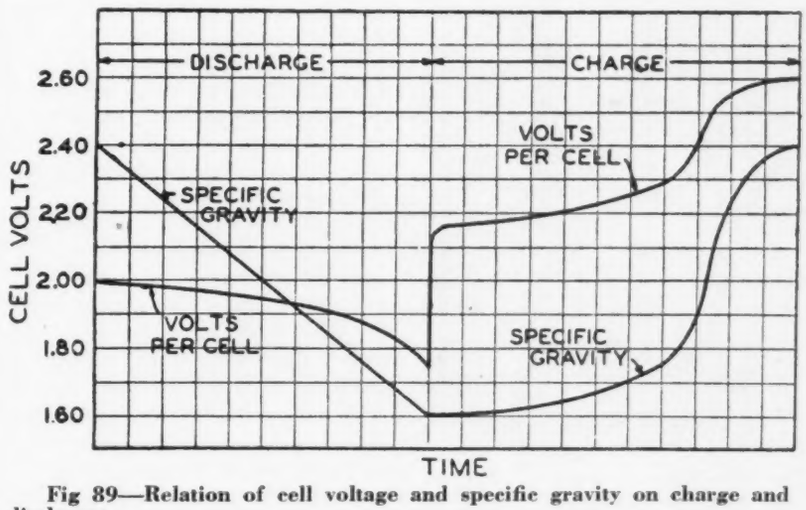


Fig 89—Relation of cell voltage and specific gravity on charge and discharge.

glass tube and floats the hydrometer. After the reading is taken, uncovering the hole will readmit air into the tube and cause the electrolyte to drain back into the cell.

In smaller installations where battery readings are taken at less frequent intervals, the syringe hydrometer is usually of the portable type which is kept in an acid-proof container when not in use, as indicated in *Figure* 93. The container is made from a lead sleeve 1½ to 2 inches in diameter with a lead disk soldered on the bottom. The top of the container is flared to accommodate the syringe bulb and thus properly support the body of the hydrometer. This minimizes distortion of the nozzle end, which might result if the instrument were allowed to stand on the bottom of the container.

To assure accurate readings, the syringe must be filled and emptied at least once before taking the reading to clear out electrolyte remaining from previous use. Also, in the case of portable type syringe hydrometers, the instrument should be held in a vertical position by its neck rather than by the bulb to avoid possible variations of air pressure within the syringe, and it should be gently shaken to release air bubbles adhering to the hydrometer.

Accurate readings are highly important if the condition of the cells is not to be misinterpreted. Only standard hydrometers available through battery manufacturers should be used for taking the readings. Cheap automobile type hydrometers have been found to be in error by from 25 to 100 points. Hydrometers graduated with divisions each corresponding to one or two points of specific gravity should be used rather than those with gradations corresponding to five points per division. The reading should be made on a line with the level of the electrolyte, not with the edge of the liquid creeping up the sides of the float stem. Sometimes, the scale inside the stem slips down and causes erroneous readings to be taken. This condition should be guarded against.

Fig. 91—Inserting syringe hydrometer in vent of closed cell for taking specific gravity readings.

Hydrometers should be cleaned as often as necessary to assure accurate readings. If the shot sealed in the bottom of the float becomes loosened, it should be resealed by heating this part of the float while holding the float in a vertical position. Loose shot will affect the accuracy of the readings.

The specific gravity of battery electrolyte varies with the temperature. This makes it necessary to correct all hydrometer readings to a standard temperature which is generally 77°F. (An older practice sets the standard temperature at 70°F.) This correction is made by adding to the hydrometer reading one point for each 3 degrees above the standard temperature or by subtracting from the reading one point for each 3 degrees below this temperature. Vent hole thermometers of the kind shown in *Figure* 92 are very convenient for taking the temperature readings. A satisfactory temperature scale range for cell thermometers is 30 degrees to 120 degrees F.

Since each cell of a central office battery has approximately the same specific gravity, it is customary to select one cell of the group, termed the pilot cell, for measurements of specific gravity and temperature. In installations of closed type cells, the pilot cell is rotated at regular intervals in order to compensate for the small amount of electrolyte that may be lost each time the reading is taken with a portable type syringe hydrometer. This rotation may be made once each month with the pilot cell number corresponding to the number of the month, as "1" for January, "2" for February, etc. (One battery manufacturer recommends a rotation after every 50 or so gravity readings have been taken.) When a permanently mounted vent type hydrometer is used, rotation of the pilot cell is unnecessary, since no loss of electrolyte due to dripping is encountered with this type of hydrometer.

When the central office battery is first placed in service, its electrolyte has a certain concentration depending upon the size, type, and make of the storage cells. Except for normal variations occuring in the course of the charge and discharge of the battery and a very slight, gradual decrease resulting from the aging of the active materials in the plates, this concentration remains fairly con-

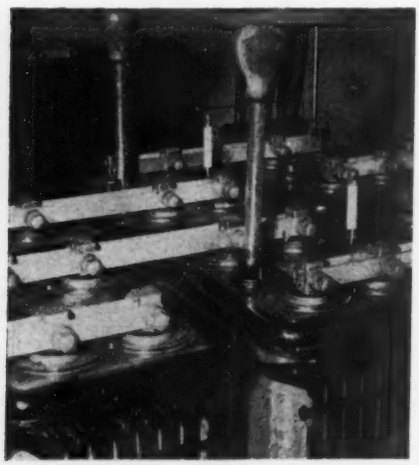


Fig. 92—Type of syringe hydrometer designed for fitting in vent hole of Exide closed cells.

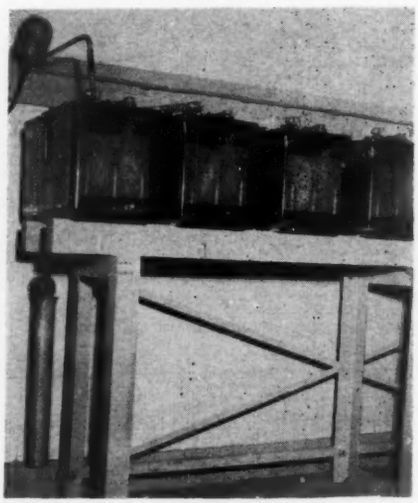


Fig. 93 — Acid-proof container for syringe hydrometer. (Note rubber syringe filler used for adding water to the cells.)

stant throughout the life of the battery; provided that its volume does not vary. This results in a fairly stable normal specific gravity.

Aside from accidental spilling or leakage, variations in volume of electrolyte occur chiefly as the result of loss of water due to natural evaporation and gassing of the cells on charge. Since the original amount of acid does not change, the result is an abnormal increase in the specific gravity as the level of the solution falls. Such a variation of the specific gravity causes misleading hydrometer readings. Hence it is important that the electrolyte always be maintained at the same level. At the same time, this level must not be too high, or low specific gravity readings may result and the cells may overflow when the battery is on an equalizing charge and the cells are gassing freely.

To maintain the correct level, distilled water is added at regular intervals in small amounts to replace the volume lost by evaporation and gassing of the cells, usually once a week in the case of closed type cells. (A rubber syringe filler of the kind illustrated in *Figure* 93 is convenient for this purpose.) The water should be added after the gravity reading has been taken, never before; otherwise, the accuracy of the reading will be affected by the unequal diffusion of the water throughout the electrolyte.

As to the question of using ordinary tap water instead of distilled water, it may be possible in some localities to obtain water of sufficient purity from the local water mains. However it is considered the safer practice to use distilled or thoroughly purified water at all times, because of the possibility that ordinary water may become temporarily contaminated with substances harmful to battery electrolyte. It is a good plan to send samples of battery water to the battery manufacturer at periodic intervals (ordinarily twice a year) for laboratory tests to check the purity of the water.

Care should be taken not to allow distilled water to become contaminated. The bottle in which distilled water is kept should be clean and should have a glass stopper, rather than one made of rubber or cork. Water that develops an unpleasant odor in storage should be considered unfit for use in the cells.

Fig. 95 — A. E. Tompkin & Co., Hydrion water demineralizer.

Fig. 94—Water still operating off building steam heating plant for obtaining distilled water for storage batteries.

Methods of Obtaining Distilled or Purified Water

DISTILLED water can be obtained from wholesale drug companies. When a considerable quantity of distilled water is needed, however, it is more economical to produce water of the desired purity on the telephone company premises. For the larger companies water stills operating off the building steam heating plant are in successful use. Such a unit is illustrated in *Figure* 94.

Recently, a chemical type demineralizer has been placed on the market for producing battery water of the desired purity. A canister unit type of water demineralizer is illustrated in *Figure* 95. This unit is connected to a water faucet and produces battery water of satisfactory purity simply by turning on the faucet and allowing the water to flow into a receiving container as shown in *Figure* 96.

The operation of the demineralizer is explained as follows: The dissolved mineral impurities are generally salts of calcium, magnesium, iron, sodium, etc. These minerals, when dissolved, break up or ionize into cations and anions. For example, sodium chloride (common table salt) dissolves in water to form "sodium" cations and "chloride" anions. The canister of the unit is loaded with a charge of ion-exchangers, which are specially processed high-capacity exchange resins developed to effectively and economicaly remove the dissolved ionized impurities. In the passage of tap water through the demineralizer,

(*Please turn to page* 52)

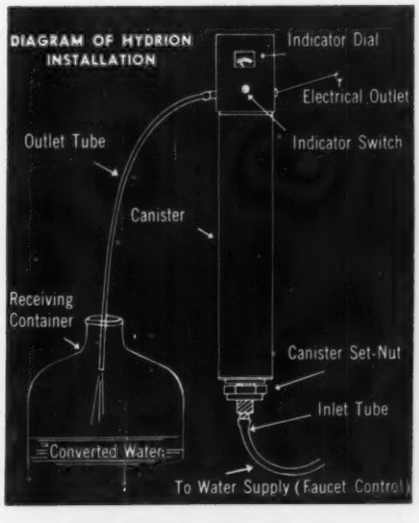
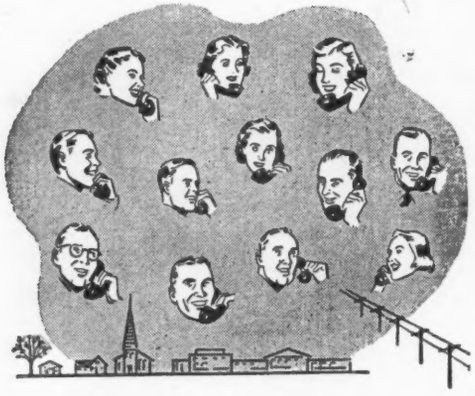


Fig. 96—Showing how Hydrion demineralizer is used to purify tap water for use in storage batteries.

MANAGEMENT



Small Company Talk

"If displaced items of plant are not charged out of the plant accounts, these accounts gradually build up fictitious values on plant which is non-existant . . ."

By Bill Corman
Contributing Editor

HI, NEIGHBOR! In the October issue of TELEPHONE ENGINEER AND MANAGEMENT you may recall a discussion of the Material and Supply Account, and other associated records. One or two more articles on the same general subject were referred to, and this is one of those articles. In that previous discussion, the accounting for materials and supplies *used* was the subject. In this article the subject is the accounting for materials and supplies *recovered*, and the corrolary to that, plant displaced.

By way of summary of the previous article, you will recall that there were three exhibits, the daily record of materials used or recovered; the material used summary sheet; and a sheet from the material and supply book. Materials used by repair or construction crews each day were entered in the first record, the record of material used or recovered. Each of these daily sheets were then summarized at the end of the month on the Material Used Summary Sheet. The summarized information on this sheet was then used to derive the General Journal Entry concerning Materials and Supplies that were used during the month, and also to post to the Material and Supply Book in order to keep that record up to date. The book, you will remember, was a subsidiary ledger for the Material and Supply Account (in the General Ledger of Accounts) and had a separate sheet for each item of material carried in the Material and Supply inventory. On each of these sheets were columns for entering the quantity and value of materials received, materials used, and the balance. The final column on the sheet was a unit value column.

These three records are used in the accounting for Materials recovered. Materials recovered refers to those items of telephone material (poles, wire, etc.) which have been in use in the telephone plant, but which, for some reason or other, have been taken out of service and put back into the Material and Supplies Inventory, or, the same thing, into stock.

From that description, it will be seen that *two* accounting answers must result from whatever procedure is followed. First, the value of the item *in plant* must be removed from the plant asset accounts, since the item is no longer in service. Second, the *material value only*, of any reusable material recovered when the items were taken out of service, must be put into the Material and Supply Account. These two values are not necessarily the same—more often than not they are different. The value of an item *in plant* includes the total cost of placing that item in service—material cost, labor cost, transportation, etc. On the other hand, once that item comes out of service, labor, transportation, etc., are eliminated, and only the material value is considered when the item is placed back in stock.

It is important that both of these accounting entries emerge from the procedure you use. If displaced items of plant are not charged out of the plant accounts, these accounts gradually build up fictitious values on plant which is nonexistant. Also the reserve for depreciation builds up both faster and to a larger amount than it should, and the depreciation expense figure is also overstated. If reusable items of plant are not taken back into stock, in the books of account as well as in the warehouse, then there will come a time when you are using items of material for which you have no value set up, or you will use material at lower unit values than it is actually worth.

In other words, the whole point to telephone plant accounting is to maintain records that reflect as nearly as possible the true picture and the true value of the telephone plant in service. When, either through a wrong or omitted practice of accounting, this picture is rendered more and more false, then the value of the record becomes less and less. From time to

RECORD OF MATERIALS USED OR RECOVERED

REMARKS:

*CONDITION OF RECOVERED MATERIALS OR EQUIPMENT G—GOOD AS NEW F—CAN BE USED

PRINCIPAL ITEMS OF EQUIPMENT	WHERE USED OR RECOVERED	JOB OR EXCHANGE	QUANTITY	CHECK ONE COLUMN: USED ON JOBS	REMOVED—JUNKED OR ABANDONED	RECOVERED, PLACED IN STOCK. *NOTE CONDITION	ENTERED: ACCOUNTING CHARGE OR CREDIT ACCOUNT NO.
20 FT. CL. 9 C.P. POLE	ATMORE		3		X		241
" " " "	"		2			X	241
OAK BRACKETS	"		10			X	241
COMM. BATT. HANDSET	"		2			X	231
" " "	" (BURNED)		1		X		231

EXHIBIT ONE—Record of Materials Used or Recovered

time it may seem to a manager that it is to his advantage to have his books reflect distorted values in order to better promote a certain aspect of the business, but in the long run, the true and full value of records can be had only if those records are as correct in every respect as possible.

"Distorted Figures Lead To False Thinking . . ."

THERE ARE examples by the dozen that support this contention, but I will mention only one which many companies in the last few years have run into with a sudden head-on collision. Many small companies have followed the practice of charging various amounts of new construction to expense. This reduces the stated value of the book net profit and also the stated book value of the plant assets. The low profit figure causes a low income tax to be paid, and the low plant value figure causes a low property tax to be paid. That, from many viewpoints, seemed an advantageous course to pursue. But the results of such action are cumulative and gradually build up to a number of very undesirable results. With a consistently low earning record, and with a low plant value, these companies have had a very difficult time proving that they had the earning capacity and the plant equity to support a loan. In many cases, the policy had been followed so long and so consistently that even the manager had no idea of what his true earnings were and of what his plant was really worth. And if the low plant value figure was used as a rate base, a commission would have every reason to deny a rate increase. And even worse than this, I believe, is the fact that distorted figures lead a manager into all sorts of false thinking and false planning.

The proper retirement of plant and recovery of material, accounting-wise, is therefore an important part of keeping your books straight. As stated, the three records discussed under the material *used* subject are also used for material recovered. Items of plant that are taken out of service are reported on the daily (or weekly, or longer) material report, *exhibit one.* If other than a daily form is used, it is best to fill in the form each day so that the items of material used and recovered will not be forgotten. A short study will show that exhibit one gives the following information: three 20 ft., class nine, creosoted pine poles were taken out of service and junked; two of the same class were taken out of service and placed in stock for reuse; 10 oak brackets were taken out of service and placed in stock; two common battery handsets were taken out of service and placed in stock and one was taken out of service and junked. This is the record of one day's activity in removing items from plant. At the end of the month, or whatever the accounting period is, all of these daily entries are posted to and summarized on a sheet such as *Exhibit* 2, which is the counterpart of the monthly summary of the material used. The other entries on *Exhibit* 2 are

MATERIAL RECOVERED AND PLANT DISPLACED

EXCHANGE: ATMORE | DISTRICT | MONTH OF: DEC 1951 | CODE NO.
ESTIMATE NO. | DIVISION | SHEET NO.

MATERIAL: ARTICLE	COND.	COM. BATT. HANDSET	20' CL 9 C.P. POLE	10-PIN X-ARM	#1 IRON WIRE	18' NATIVE POLE	COM. BATT. HANDSET	20' CL 9 C.P. POLE	OAK BRACKETS	OAK BRACKETS
UNIT OF QUANTITY		EA	EA	EA	LB	EA	EA	EA		
QUANTITIES: LIST EVERYTHING REMOVED FROM PLANT (EXCEPT JUNK AND WORTHLESS MATERIAL RECOVERED UNDER 285, 484 AND ALL M AND Y CODE NUMBERS); USE SEPARATE COLUMNS FOR EACH ITEM OR KIND. (DO NOT TRY TO USE EITHER WITH OR WITHOUT REPAIR). SHOW THIS BY STRIKING OUT THE WORDS UNDER "CONDITION" THAT DO NOT APPLY TO USE): USED (JUNK AND WORTHLESS)		1								
			2	2	100	10			30	
		1								
		1			10				4	
		2	2				1	3		10
ENTERED										
CHECKED										
EXTENDED										
CORRECT		231	241	241	243	241	231	241	241	241
TOTAL		6	4	2	110	10	1	3	34	10
SALVAGE VALUE: PRICE		20.18	6.75	3.80	.131				.14	.08
SALVAGE VALUE: CHRG. SUPPLIES		121 08	27 00	7 60	14 41					80
PLANT DISPLACED: PRICE		20.18	13.50	7.38	.449	8.00	20.18	13.50	.18	.18
PLANT DISPLACED: ORIG. COST IN PLANT		121 08	54 00	14 76	49 39	80 00	20 18	40 50	6 12	1 80

POSTED FROM EXHIBIT 1

POSTED TO EXHIBIT 3

Acct. No.	General Journal Entry	Debit	Credit
122	Materials and Supplies	$ 170.89	$
171	Depreciation Reserve	216.94	
231	Station Equipment		141.26
241	Pole Lines		197.18
243	Open Wire		49.39

SUB-TOTALS — Acct 231 — 141 26; Acct 241 — 197 18; Acct 243 — 49 39

TOTAL: 170 89 | 387 83

EXHIBIT TWO—Material Recovered and Plant Displaced.

postings of other day's activity during the month, and the totals across the bottom of the entry space (6, 4, 2, 110 etc.) are the total number of the different items taken out of service during the month. It will be noticed from *Exhibit* 1 that while three common battery handsets were taken out of service, only two of these were recovered and one was junked, the entry indicating it was burned in a fire.

On the blocked in line on *Exhibit* 2 it will be noticed that the two that were recovered were entered in the first column, while the one that was burned was entered in a different column (column 6) and the space headed "Salvage Value" in column six has been crossed out, indicating that there was no salvage value. Likewise, from *Exhibit one* it will be noticed that while five 20 ft., class 9, creosoted pine poles were removed from service, only two were placed in stock for reuse, and that the other three were junked. Likewise, on Exhibit Two, the three poles which were not salvaged were placed in column seven with the "Salvage Value" Space crossed out, and that the two which were salvaged were placed in column two where the "Salvage Value" space was left open for the proper entries.

In *Exhibit Two,* under the total of each column will be seen space for two sets of entries, one headed "Salvage Value" and the other headed, "Plant Displaced". In each of these spaces there are two sub-spaces, one of which in each case is marked "price"—this means the unit price of the item. The next job is filling in these price spaces, and this is a rather difficult job.

First let's look at the unit prices for the different items of "plant displaced." The value that must be placed here is the value of the item *in plant.* Maintaining records to indicate what these values are has been discussed in these articles a number of items, but in the absence of such records (usually called Continuing Property Records) the best guess possible should be made. With some study and consideration a fair guess can be made in the small plant. But again it should be emphasized that the value to place here is the full value of the item *in plant* which includes all the components of cost—material, labor, transportation, overhead, etc.

The units in the total line should then be extended and the total value placed in the space headed "Orig. cost in plant". These are the values which must come *out* of the various plant asset accounts.

ITEM POLE, CREO. PINE. 20 FT CL 9

UNIT EACH

DATE	FROM WHOM RECEIVED HOW DISPOSED OF POSTING SOURCE	RECEIVED OR RECOVERED		USED OR SOLD		BALANCE ON HAND		UNIT VALUE
		QUAN.	VALUE	QUAN.	VALUE	QUAN.	VALUE	
1951 1-31	VOUCHER 2380	20	120 00			20	120 00	6 00
"	FREIGHT		10 00			20	130 00	6 50
"	LOADING		5 00			20	135 00	6 75
"	JAN. SUM. SHEET			4	27 00	16	108 00	6 75
2-28	FEB. SUM. SHEET			6	40 50	10	67 50	6 75
3-31	VOUCHER 2402	40	250 00			50	317 50	6 35
	ENTRIES FOR MARCH THRU NOVEMBER ENDING WITH BALANCE OF →					20	135 00	6 75
12-31	DEC SUM. SHEET	4	27 00			24	162 00	6 75

EXHIBIT THREE—Material and Supply Book Sheet.

Next, the price under "Salvage Value" must be filled in each case where the space is not crossed out. These salvage value unit prices are obtained in a number of ways. Theoretically what should go here is *the original material cost only* of the item. In practice this is usually a difficult figure to derive, especially if you do not know the total cost of the item when it was in plant. So what you have to do again is to make an acceptable guess. In the case of telephone instruments, in A, B & C accounting, the total value of the instrument in service *is* the material value since no labor or overhead goes into this account. Therefore, it will be noticed that the "price" used in both the "Salvage Value" and in the "Plant Displaced" spaces is the same —$20.18. On the poles, however, a different situation arises. Other costs besides material *are* included in the cost of a pole in plant. Therefore, the price to be indicated as "Salvage Value" will usually be *less* than the original cost of the pole in service. Here you have to fall back on an "acceptable guess". And, in cases where original material cost cannot be reasonably derived, an acceptable guess is this—the present value of the same item as it shows in your material and supply book; in other words, the present value *new* of that same item. Although such a practice may seem out of line on first thought, a little study will indicate that theoretically it is all right—not perfect, but at least satisfactory in lieu of the correct figure which may be impossible to get. Saying this same thing in the negative way—you do *not* want to price used but reusable items of material in the material and supply account at a depreciated value, but at their full value as if they were new. Theoretically, this should be the full value of the original material cost new of the item, but practically, the full value of the present new cost is an acceptable substitute.

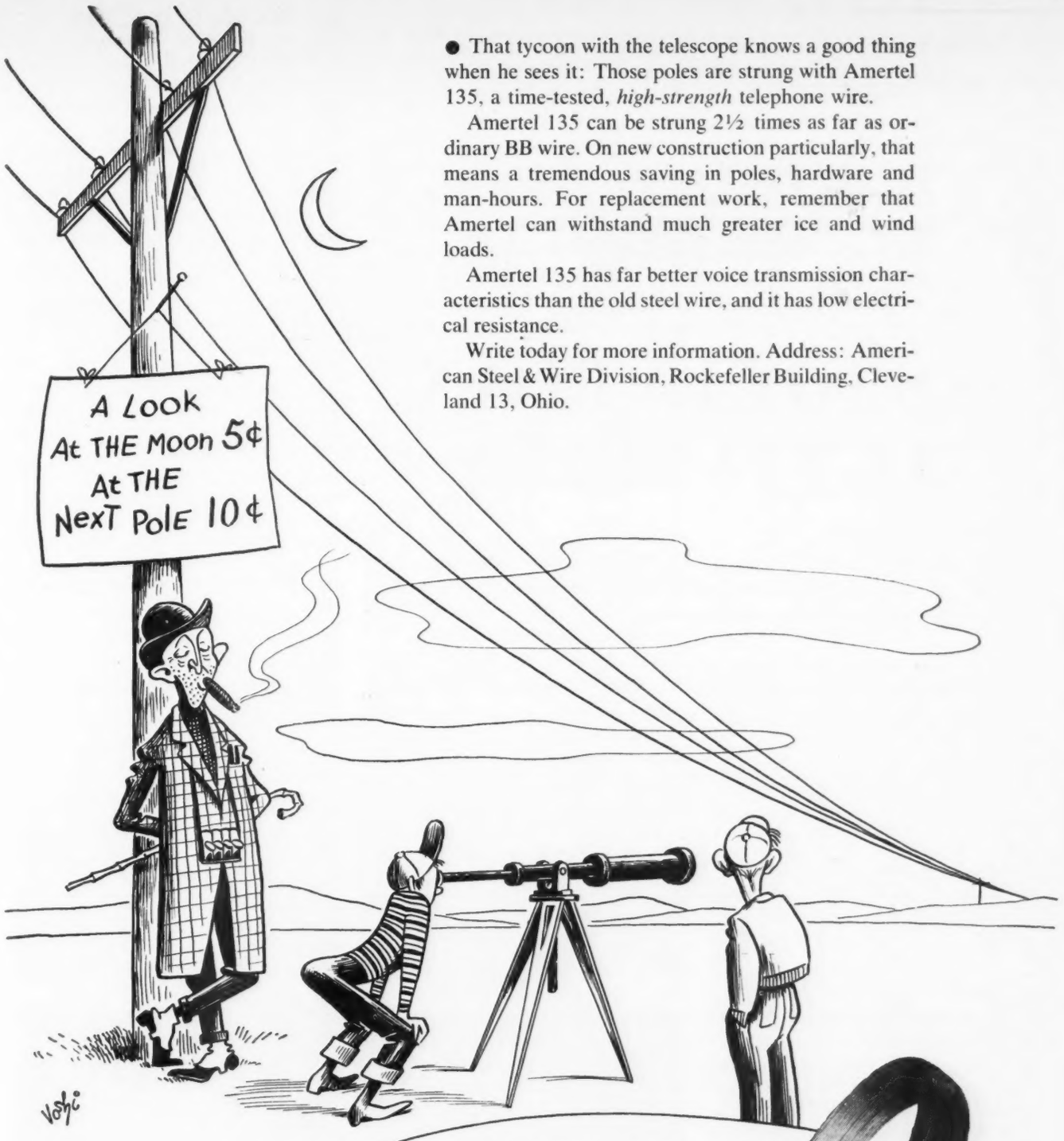
One word of warning before we leave this subject. Replace in stock, and recover in the material and supply account *only* those items that you definitely can and will reuse. If you recover items that you are not going to reuse, but can and will sell, place them in the material and supply account at the price at which you can and will sell them. This is in special reference to old switchboards, out of date telephones, etc., which you will not reuse but which you will sell, usually as junk. In such cases use only the junk price.

After the price units have been filled in under Salvage Value, the next step is to extend the product of the number of units times price and fill in the line marked "Value charged to supplies".

Two lines up from the line on which the totals are recorded will be seen some account numbers—231, 241, etc. These are the class B account numbers designated on *Exhibit One* and showing which plant accounts must be credited with the items of plant removed from service. The space headed "Plant Displaced" is now sub-totalled by accounts, as shown on *Exhibit Two.* Grand totals are then derived for the value of plant displaced ($387.83) and for Salvage Value ($170.89).

We now have all the information necessary to build up the General Journal Entry. The total of the Salvage Value line is Debited to Materials and Supplies (Acct. 122 in B Accounting). The sub-totals under Plant Displaced are credited to the respective accounts shown. The offsetting credit, to the Debit to Materials and Supplies, is to Acct. 171

(*Please turn to page* 52)



● That tycoon with the telescope knows a good thing when he sees it: Those poles are strung with Amertel 135, a time-tested, *high-strength* telephone wire.

Amertel 135 can be strung 2½ times as far as ordinary BB wire. On new construction particularly, that means a tremendous saving in poles, hardware and man-hours. For replacement work, remember that Amertel can withstand much greater ice and wind loads.

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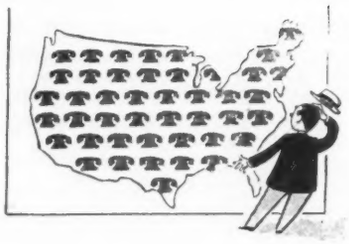
UNITED STATES STEEL



ASSOCIATION ACTIVITIES

Wisconsin Locally Owned Group holds annual meeting . . . R. W. Shriner elected Florida Association president . . . Merle Hale announces Pioneer Committees.

Wisconsin Locally Owned

ANNUAL meeting of the Wisconsin Locally Owned Telephone Group at Stevens Point, Wis., resulted in the reelection of all officers and directors.

Officers include W. L. Smith of Badger State Telephone Co., Neillsville, chairman; T. H. Sanderson of Peoples Telephone Co., Portage, vice chairman; A. H. Bowden of Almond Telephone Co., treasurer, and L. M. Lamkins of Manawa Telephone Co., secretary.

Directors are: J. F. Benjamin of Cumberland Telephone Co.; Charles O. Iverson of Amherst Telephone Co.; W. H. Kimmel of Union Grove Telephone Co., J. D. Kratz of Footville Telephone Co.; Karl Mess of Price County Telephone Co., Phillips; R. S. Odegard of Menomonee Falls Telephone Co.; Dave E. Peterson of Midway Telephone Co., Medford; R. G. Peterson of Wittenberg Telephone Co.; J. E. Welch of Peoples Telephone Co., Mt. Hope; Otto Wipperman of Mosels & Centerville Telephone Co., Cleveland, and Wyman Wiswell of State Long Distance Telephone Co.

Pioneer Committees

MERLE HALE, Lincoln, Neb., president of the Independent Telephone Pioneer Association, has announced the following list of association committees:

ANNUAL MEETING AND ENTERTAINMENT: Roy W. Siemund, Chicago, Ill., chairman; John Brown Cook, Chicago; William P. Hollis, Clifton, N. J.; Herbert F. Lello, Chicago; R. A. Lumpkin, Mattoon, Ill.; F. M. Parsons, Chicago; W. J. Pfaender, Chicago, and H. C. Ryon, Galion, O.

AUDITING: A. G. Kiesling, Springfield, Ill., chairman; Paul Lashmet, Chicago, and Orra M. Westrup, Mattoon, Ill.

HOBBY: H. B. Couch, Topeka, Kan., chairman; W. H. Beck, Indianapolis, Ind.; E. D. Brink Jr., Springfield, Ill.; Effie M. Dean, White Salmon, Wash.; E. M. Hiestand, Madison, Wis.; James F. Searl, Newton, Iowa; Guy O. Seaton, Lincoln, Neb., and Wilma S. Willis, Harrisonville, Mo.

MEMBERSHIP: Katharine A. Bauer, Jefferson City, Mo., chairman; Herbert E. Hussey, Lafayette, Ind.; Karl W. Mohr, Sparta, Wis.; Genevieve Sauerhage, and B. W. Saunders, Springfield, Ill.

NEW MEMBERS: R. H. Burfiend, Chicago, chairman; M. Ethel Cunningham, Harrisburg, Pa.; Cecelia M. Burke, Springfield, Ill.; Clarence A. Gillespie, Worthington, O.; C. V. Hammer, Faribault, Minn.; Gilbert A. Klein, Cookeville, Tenn.; Vincent A. Ralph, Des Plaines, Ill.; G. E. Slusher, Johnstown, N. Y.; L. A. Stacy, Lincoln, Neb., and Roy E. Putnam of Muskegon, Mich.

PUBLICITY: Ray W. Smith, Chicago, chairman; R. C. Reno, Chicago; A. B. Gorman, Lincoln, Neb., and Mayme Workman, Springfield, Ill.

Florida Convention

By JOSEPHINE POPPLETON, Secretary-Treasurer, Florida Telephone Assoc.

TWENTY-THREE telephone companies operating in the state of Florida, representing approximately 663,480 stations, together with 18 manufacturing exhibitors, held their annual meeting again this year at Daytona Beach, with 260 persons in attendance. Forty-four years ago this Association was organized and the first meeting was held in Tampa, Florida, with 25 delegates and one ex-

USITA Executive Vice Pres., Clyde S. Bailey (left) and USITA Pres., L. W. Hill (center) discuss Florida convention with Carl Brorein, pres. of Peninsular Tel. Co., Tampa.

hibitor present, representing 17,522 stations.

The same popular form of program was carried out as in the past which covered a two-day period. The morning of the first day was spent in renewing acquaintances and visiting with the manufacturing representatives and friends.

Officers elected to serve for 1952 are:

President, R. W. Shriner, Peninsular Tel. Co., Tampa; First Vice President, J. L. McGehee, West Fla. Tel. & Teleg. Co., Marianna; Second Vice President, George Northington, Inter County Tel. & Tel., Ft. Myers, and Secretary-Treasurer, Josephine Poppleton, Peninsular Tel. Co., Tampa.

Executive Committee members are: R. W. Shriner, chairman, M. L. Barre, Carl D. Brorein, J. K. Galloway, J. L. McGehee, George Northington, Josephine Poppleton, Blair C. Stone, and Max Wettstein.

Members of the Board of Directors are: C. E. Archer, Peninsular Telephone Co., Tampa; M. L. Barre, Southern Bell Tel. & Teleg. Co., Jacksonville; H. A. Bishop, Starke Telephone Co., Starke; P. E. Brannen, Inter County Tel. & Teleg. Co., Ft. Myers; Carl D. Brorein, Peninsular Telephone Co., Tampa; Carl D. Brorein, Jr., Peninsular Telephone Co., Tampa; Mrs. Allene M. Drew Cantey, Quincy Telephone Co., Quincy; E. L. Cox, Gulf Telephone Co., Perry; A. B. Dooley, Southern Bell Tel. & Teleg. Co., Jacksonville; B. A. Galloway, Winter Park Telephone Co., Winter Park; J. K. Galloway, Winter Park Telephone Co., Winter Park; Ralph Maner (Representing Mfgrs.), L. M. Berry & Co., Tampa; J. L. McGehee, West Fla. Tel. & Teleg. Co., Marianna; E. M. Menendez, Southeastern Telephone Co., Tallahassee; George Northington, Inter County Tel. & Teleg. Co., Ft. Myers; Josephine Poppleton, Peninsular Telephone Co., Tampa; Blair C. Stone, Southeastern Telephone Co., Tallahasee; J. L. Sharit, St. Joseph Tel. & Teleg. Co., Port St. Joe; R. W. Shriner, Peninsular Telephone Co., Tampa; Max Wettstein, Florida Telephone Corp., Ocala; Otto Wettstein, III, Florida Telephone Corp., Ocala, and M. P. Willis, McIntosh Telephone Co., McIntosh.

The first General Session was called to order by President Max Wettstein. A most interesting address was given by F. M. Malone, vice-president of the Southern Bell Telephone & Telegraph Co. of Atlanta, Georgia, on the subject "The Increasing Importance of Public Relations in the Telephone Business."

Mr. Malone stated that the company has spent more than half a million a day for its program in North Carolina and South Carolina, Georgia, Florida, Kentucky, Tennessee, Mississippi, Alabama and Louisiana. "This money is borrowed money," he said, "for every nickel that goes into a pay phone and every penny of every phone bill goes into maintaining existing equipment. Because money must be borrowed for expansion and improvement the credit of the Company must be good. That's where public relations come in."

This address was followed by a short talk made by L. W. Hill, president of the United States Independent Telephone Association, who introduced Clyde S. Bailey, USITA executive vice president.

The subject "What's Wrong Along the Potomac" was handled as only Clyde Bailey could handle such a subject. His talk proved to be both entertaining and interesting.

He complimented the Florida Telephone Association as a smooth working efficiently operated organization, cooperative with the National Association when called upon in meeting their mutual problems. His brief reference to the rapid growth of the telephone industry and the Association membership over the years of their existence and the problems that have been met and solved, as well as those now facing us, struck a responsive note in the audience.

Among the current problems eminating from the "Banks of the Potomac" Mr. Bailey referred to the legis-

COMING CONVENTIONS

"There has never been a time . . . when it was more necessary for telephone people to take common counsel upon common problems."

Louisiana Telephone Association, Francis Hotel, Monroe, Feb. 22 and 23.

Kentucky Independent Telephone Association, Phoenix Hotel, Lexington, Mar. 4.

Texas Telephone Association, Gunter Hotel, San Antonio, Mar. 10, 11 and 12.

Nebraska Telephone Association, Paxton Hotel, Omaha, Mar. 25 and 26.

Iowa Independent Telephone Association, Fort Des Moines Hotel, Des Moines, Apr. 8 and 9.

Illinois Telephone Association, Hotel Abraham Lincoln, Springfield, Apr. 17 and 18.

Ohio Independent Telephone Association, Deshler-Wallick Hotel, Columbus, Apr. 21, 22 and 23.

Pennsylvania Independent Telephone Association, Bedford Springs Hotel, Bedford, Apr. 29 and 30.

United States Independent Telephone Association Executives Conference, Broadmoor Hotel, Colorado Springs, Colo., May 8 and 9.

New York State Telephone Association, Mark Twain Hotel, Elmira, May 21 and 22.

Indiana Telephone Association, Claypool Hotel, Indianapolis, June 4 and 5.

Michigan Independent Telephone Association, Olds Hotel, Lansing, Sept. 12.

United States Independent Telephone Association (annual convention), Conrad Hilton Hotel (formerly the Stevens), Chicago, Oct. 13, 14 and 15.

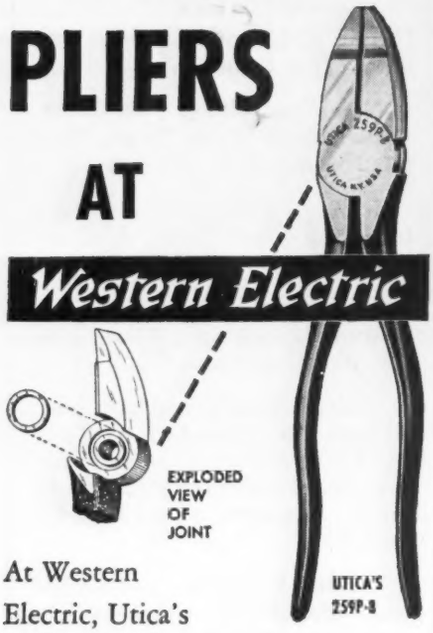
North Carolina Independent Telephone Association, Carolina Hotel, Pinehurst, Oct. 27 and 28.

South Carolina Independent Telephone Association, Clemson House, Clemson, Oct. 30 and 31.

Alabama-Mississippi Independent Telephone Association, Jefferson Davis Hotel, Montgomery, Ala., Nov. 10 and 11.

"There is no quick, easy way to the acquisition of knowledge . . . but at a convention there will be ready-made answers to perplexing problems."

UTICA *LUBRING* PLIERS AT *Western Electric*



At Western Electric, Utica's *Lubring* line of pliers ...with built-in lubrication...is used for a wide variety of in-plant and field jobs.

Utica's *Lubring* line of finest pliers has a ring of oil-impregnated porous iron floating in the joint . . . slowly feeding lubrication for smooth action, long life.

Drop forged, precision machined, with cutting edges hardened by a special Utica process, the Utica *Lubring* line has the heft, feel and rugged power for continuous daily use.

Your tool supplier can tell you more about *Lubring* and other Utica pliers . . . or write direct to

UTICA Drop Forge & Tool Corp.
Utica 4, New York
In Canada:
Adam Tool & Supply Co., Ltd., Montreal
Walls-Irons, Ltd., Winnipeg

AND THE WORLD'S BEST TOOLS ARE MADE IN U. S. A.

Officers of the Florida Telephone Assoc. (l. to r.): Pres. R. W. Shriner; Sec.-Treas. Josephine Poppleton; First Vice Pres. J. L. McGehee, and Second Vice Pres. Geo. Northington.

lative effort to place the responsibility for policing gambling activities on the telephone companies and the successful effort of the Industry through the National Association in the amendment of the Bill so as to protect "the historic privacy and intimacy of telephone usage". He referred to the approach to this problem which was adopted within the State of Florida by the Florida legislature which placed the primary responsibility on detection of gambling on law enforcement agencies; and he pointed out that the Congress when the legislation before it was later passed, followed this approach.

He referred to the effort in the past of the Wage-Hour Division "to whittle away" the Industry's 750 station exemption under the Wage-Hour Act by proposing that in instances where the combined stations of community dial exchanges and the control office exceed 750 stations the exemption is lost.

The effect of increased taxes on rates for service was reviewed and Mr. Bailey pointedly stated that "the unfortunate retroactive feature of the tax to April first focuses marked attention upon the most imperative need for the utmost expedition by regulating commissions in dealing with rate case applications".

The FCC proposal to shift revenues where earnings are high to areas where earnings are low, looking toward uniform rates and charges and rate structures was also dealt with pointedly. The failure of a similar plan to work when applied to the railroads a number of years ago was cited.

Mr. Bailey concluded by pointing out that we are still "the best nation on the face of the globe" and that we can be thankful that we are not getting as much government as we are paying for.

H. J. Heuther, president of the Kentucky Telephone Corporation, very ably discussed the subject "Central Government—a Personal Inventory."

Mr. Heuther stated that man's yearning for security has always been one of his highest aspirations. That and his desire for liberty are two basic instincts. Invariably he has had to forego one or the other.

"Security," he said, "is eminently desirable in this uncertain world. When honorably purchased by personal initiative, work and thrift, it is right and may be honorably enjoyed. True, it is proper and necessary for society as a whole to care for the aged and infirm who, through no fault of their own, are suffering or in dire need, but, it is most distressing to see Americans expect something for nothing from a paternalistic government; yield their democratic privileges and rights through various schemes, yet, it's happening right before our very eyes today.

"In alarming numbers, thoughtless people are surrendering their liberties in order to secure socialized security. Whole nations seemingly do not want liberty enough to stand up effectively for it."

Mr. Heuther emphasized that the possession of both liberty and security is no vain dream.

"It can be accomplished", he said, but only by a self-reliant people. We must fight for our liberties today as those before us fought for theirs in

their day. Liberty and security are not gifts of inheritance. Their realization depends entirely upon our self-reliance, our willingness to take and hold and in winning our liberty to build our own security."

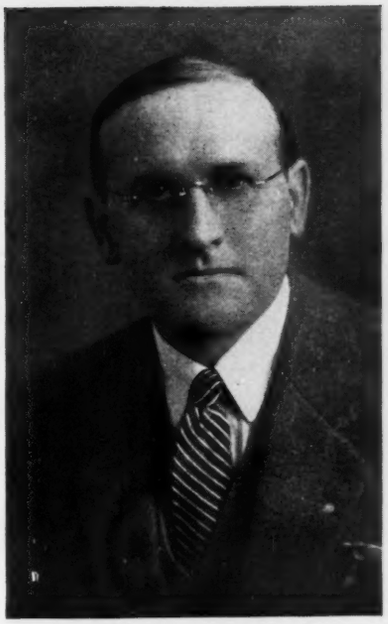
He warned that the approach of dictatorship is always "stealthy."

"Government hand-outs," he said, "seem to promise economic prosperity and security. Under the guise of something for nothing, masses of people have lost sight of what ancient and modern history has definitely and repeatedly demonstrated that it is the same process by which other free people have lost their liberties."

Commenting that the issue is not only political but moral as well, Mr. Heuther stressed that—"We must be vigilant not only against corruption in government, the solution for that is the proper performance of our duty at the polls, but we must as individual free citizens strive to revive a real honest appreciation of sound moral character, those old-fashioned virtues honor, integrity and personal initiation leading the way by educational and personal persuasion. . . ."

"It is high time," he said, "that we as citizens throw off the cloak of apathy and indifference and become alive to our responsibilities to our country, to our neighbors and to ourselves. Let us begin now to apply the principles of a free democracy to our public problems for the best interests of the whole people and the preservation for all of the liberty, freedom and opportunity secured for us when our ancestors framed the Constitution of these great United States of America. . . ."

The morning of the final day was given over to two separate conferences, the Traffic Conference presided over by Doug Wilkinson, district traffic manager of the Southeastern Telephone Co., Tallahassee, Fla., and the Joint Commercial and Plant Department Conference presided over by O. K. Cook and Carl D. Brorein, Jr. both of Peninsular Telephone Co.



Popular George Kloidy, secretary-treasurer Nebraska Telephone Assoc., retired Jan. 1.

The final General Session featured an address by Howard F. Van Zandt, assistant sales manager of the Kellogg Switchboard & Supply Co., Chicago. Mr. Van Zandt spent five years in Japan as a member of Civil Communications Section of Gen. MacArthur's staff. It was his job to help develop rehabilitation and reformation of the Japanese telephone system.

"The job is done," he said. "The

(*Please turn to page 38*)

Joint commercial and plant conference was popular feature of recent Florida convention. Members of this conference group are (l. to. r.): H. L. Slaight, E. B. Emrey, Carl W. Brorein, Jr., Ray W. Smith and O. K. Cook.

Runzel

TELEPHONE CORDS

Quality Cords...

FOR ALL MAKES AND TYPES OF INSTRUMENTS

When cord replacements are needed... specify RUNZEL

RUNZEL
Cord and Wire Co.
4723 W. MONTROSE AVE.
CHICAGO 41, ILL.

Don Kratz is sure having fun in

Received a letter from Don Kratz the other day.
Don sold a Leich Dial System to the Bonduel Telephone Company to be installed at Bonduel, Wisconsin.
Don was checking on some extra cable they would need before the cutover. We had already told him that it would be shipped on time.

But they're real nice people up there in Bonduel and Don is just as excited about their conversion as they are. So he's checking to be sure that all the materials are ready. He even enclosed this picture of himself laying the cornerstone for their new building.

Don Kratz is the best representative that ever traveled Wisconsin for us and we hope he doesn't get so enthusiastic that he ends up with a lame back.

You know, we think this genuine interest in a customer *after* the sale is just as important as before. That's what makes *friends* out of customers, and that makes it important for us to help our customer friends in every possible way.

This helpful, friendly attitude includes the giving of honest, practical advice—means we *never* make promises to get orders unless we know we can live up to them.

It means recommending the equipment that in our opinion will be best for the long pull, whether we make or lose a sale because of it.

Companies have character, just like people. We like to think that the enthusiasm and real helpfulness of Don Kratz is a reflection of the spirit of our whole Leich organization.

Leich Sales Corporation, 427 W. Randolph St., Chicago 6, Ill.

LEICH

in isconsin---

Dear [illegible]

Things [illegible] remember them [illegible] of Bradford? [illegible] that calls [illegible] a swell bunch of peo[illegible]

[illegible] Endorsed yet? Send a couple [illegible] snapshot of yours truly buying the cornerstone for the new building [illegible] Also [illegible] Yuk! Be seeing you [illegible] soon.

Sincerely,

Don Kusky

MANUFACTURERS OF TELEPHONES, SWITCHBOARDS AND RELATED APPARATUS SINCE 1907

Ericsson LM

TELEPHONE EQUIPMENT

is acclaimed the world over for highest quality and performance.

•

Telefonaktiebolaget L. M. Ericsson of Stockholm, Sweden, and associated companies are manufacturers of all kinds of telephone and signal equipment of every size and for every purpose.

•

Represented in the U.S. by

ERICSSON TELEPHONE SALES Corporation

100 Park Avenue, New York 17, N.Y.

Japanese system is second in number of phone calls handled only to the U. S."

Mr. Van Zandt, who reads and speaks Japanese, said his group's greatest difficulty was in understanding and learning to work with the Japanese people. "Only one half of what is said in the Japanese language or in English is translatable to the other tongue," he said, and told of talking with one of the top three interpreters of the 5,000 attached to the Army of Occupation.

"Your Association"

THERE *IS* GOLD in *your* Association" but like every thing worthwhile—like our American way of life—you have to dig for it, sometimes. Suppose you turn to your trade association for help—and it can't deliver. What's the matter? You might diagnose the trouble in one of three ways:

(1) Your problem is too specialized. It's so peculiarly your own that nobody but you can solve it. . . The only known treatment for that one is sweat. Shut the door, roll up your sleeves and start wrestling again.

(2) Your association just isn't big enough or strong enough to do all the jobs it ought to be doing. . . . If that's the case, you have a job to do. Help build up the Association until it is strong enough to help you. Get everybody to join who ought to belong. And don't be a free rider. When you're asked to serve on a committee or to help put over some association project, get in and give!

(3) Your problem is general, something everybody in the business faces. Your Association is sitting on its hands. . . What do you do then? Just what you would do if you discovered the local police force spent its time shooting pool and forgot to pinch reckless drivers. Let your fever rise. Then blow up a terrific storm. Keep blowing until something is done about it.

—Excerpt from address presented at the 1951 convention of the Missouri Tel. Assoc. by Hamilton A. Cunningham, executive secretary of the New York State Tel. Assoc.

NEBRASKA: New Sec.-Treas.

THE RESIGNATION of George M. Kloidy, secretary-treasurer of the Nebraska Telephone Association, first announced on November 1, 1950 to become effective January 1, 1951, became effective January 1, 1952, with the election of James L. Morrison as secretary-treasurer.

Before accepting this position Mr. Morrison was special agent of the Federal Bureau of Investigation at Burlington, Vt., prior to which he was associated with the Iowa Telephone & Telegraph Co., Grinnell, Ia. He later was claims adjustor for the Iowa National Mutual Insurance Co., Cedar Rapids, Ia.

During World War II he served as a bombardier with the Eighth Air Force in England and following his return from military service in 1945 he attended Drake University Law School where he was graduated with a Bachelor of Laws degree.

Mr. Kloidy who has served most efficiently for the past quarter century as secretary-treasurer of the Nebraska Association, one of the largest and most active of the state organizations, has been a valuable member of the telephone industry for over 50 years. The first 25 years of his career he worked and held various executive posts with Independent telephone companies. He has been the top official of the Nebraska Telephone Association since 1925 and during his administration the organization has progressed substantially in size, activities, and accomplishments on behalf of the Independent companies in the Cornhusker State. With two major Independent companies operating in Nebraska—the Lincoln Telephone & Telegraph Co. and the Nebraska Continental Telephone Co.—the Independent segment of the telephone industry in that state serves more telephones than the Bell System.

During his 26-year administration of the Nebraska Telephone Association, Mr. Kloidy has maintained extremely close relationships with the state government officials, particularly the Nebraska Railway Commission, and the Federal government agencies in his state. It is known that he has been particularly successful in securing justified rate increases for the smaller Independents of his state because of the high regard in which he is held by the members of the Nebraska Commission.

Plant Clinics and District Meetings recently sponsored by the Illinois Telephone Association proved valuable to Illinois Independents. Left photo shows Newell Carson addressing Taylorville meeting. Right photo, taken during Taylorville Plant Clinic, shows demonstration of power hole digging.

Industry NEWS Briefs

Collected & Edited By James A. Boyd

COPPER:
60% For Defense

DEFENSE PRODUCTION Adminstrator Manly Fleischmann said last month that at the start of 1952 direct defense and defense-related production and construction will take more than 40% of the carbon steel and about 60% of the supplies of aluminum and copper wire mill and copper brass mill products.

In discussing the estimated supply for the first quarter of 1952 of various types of controlled materials, Mr. Fleischmann gave the following breakdown on copper products:

(1) For copper brass mill products, the estimated supply is not available but 58.1% of the CMP allotments are for direct defense and defense-related production and construction, and 41.9% for all other. Of the total allotments, 331,876,000 pounds was for direct defense, including 239,500,000 pounds for the Department of Defense, and 117,618,000 for defense-related production.

(2) For copper wire mill products, estimated supply is 360,000,000 pounds, with 56.8% of the CMP allotments for direct defense and defense-related projects, and 43.2% for all other. For copper foundry products, of the estimated supply of 290,000,000 pounds, 41.8% of allotments are for defense and defense-related projects and 58.2% for the rest.

Among other developments last month, the National Production Authority (NPA) revised its basic copper raw materials order to attain more effective control over distribution of these scarce materials to defense and essential civilian production. Effective Jan. 1, 1952, the amendment authorized NPA to direct all copper raw materials, including intermediate shapes and refined copper, as well as copper scrap, to users.

Only copper refiners and scrap dealers will be permitted to accept delivery of copper raw materials of certain types without specific NPA authorization. All other users will be required to apply to NPA to purchase such materials on or before the tenth of the month preceding the month for delivery.

Paul B. Andrews of New York City has been named Deputy Director of NPA's Copper Division, succeeding Joseph W. Mullally. Mr. Andrews was formerly chief of the Brass Mill Branch in the Copper Division.

BELL SYSTEM:
Waiting List To Rise

The Bell System has predicted its waiting list for telephone service will grow to more than a million persons by the end of 1952 from the present 800,000 if more copper is not allocated to permit greater expansion.

In addition, the current list of about 1,800,000 party line users seeking single line service is expected to exceed two million by the end of 1952.

Bell companies have added equipment to serve 15 million additional telephones in the last six years. To continue expansion into 1952 the system asked the National Production Authority for 19,000 tons of copper in the first quarter. However, it was allotted only 14,400 tons.

At the beginning of 1951 the U. S. had 43,003,832 telephones, more than half of the world total of 74,800,000. The world figure was an increase of 4,500,000 from the preceding year, according to the latest issue of Telephone Statistics of the World, released last month by American Telephone & Telegraph Co.

The U. S. had an average of 28.1

(*Please turn to page* 42)

Never a *finer* telephone;
Never as great a *value*,

AT THESE

TYPE 40 Desk Monophone

TYPE 50 Wall Monophone

SE NEW LOW PRICES!

The thousands of telephone men who know Automatic Electric Monophones through actual use speak warmly of their performance, their sturdiness, their economy of maintenance, their smart lines, and the comfortable "feel" which users like.

One reason for this is that Types 40 and 50 Monophones are never static in design, but are steadily improved year after year, always reflecting the latest scientific advances, yet retaining the economy of high standardization. With such improvements as new high impedance ringers, better transmission components, and new Type 51 dials, today, as always, Monophones are ahead of the field.

Effective with shipments made on and after January 1, 1952, Types 40 and 50 Monophones will be priced as follows:

Type 40, with dial, $24.15
less dial, 18.00

Type 50, with dial, 24.15
less dial, 18.00

For harmonic ringing, add 55 cents.

But that isn't all! Now you can have these fine telephones at new low prices which represent the greatest value in all telephone instrument history.

If you have already standardized on Monophones, these new prices bring you even greater savings. If you haven't, Monophones will lower your investment costs *and* your upkeep expense, while further improving your service to users. Act *now;* order Monophones for your next requirements.

AUTOMATIC ELECTRIC

Originators and Developers of the Strowger Step-by-Step "Director" for Register-Sender-Translator Operation . . . Machine Switching Automatic Dial Systems
Makers of Telephone, Signaling and Communication Apparatus . . Electrical Engineers, Designers and Consultants

Distributors in U. S. and Possessions: Automatic Electric Sales Corporation
Export Distributors: International Automatic Electric Corporation
1033 West Van Buren Street, Chicago 7, U. S. A.

telephones for every hundred persons as of January 1, 1951, nine times the world average. Washington led American cities with 60.6 for every 100.

FCC:
"Illegal Use" Decision

TELEPHONE companies must take full responsibility for their decisions on cutting off service to subscribers because of apparent illegal use, and a notification from a law enforcement authority that the service is or will be used illegally is not sufficient for service discontinuance under any and all circumstances, a majority of the FCC concluded in a decision made public Friday, Dec. 21.

The Commission substantially upheld the complaint of Harry and Bertha Katz of Washington, D. C., against the provisions of the tariffs of the American Telephone & Telegraph Co. Long Lines Department and the Chesapeake & Potomac Telephone Co. (D. C.) relating to discontinuance of service for illegal use. It did not rule on constitutional grounds raised because of the finding that part of the tariff provision is unreasonable.

Specifically, the FCC held that the second sentence of the tariff provision, stating "Service will not be furnished if any law enforcement agency, acting within its jurisdiction, advises that such service is being used or will be used in violation of law, or if the telephone company receives other evidence that such service is being or will be so used," is unjust and unreasonable. The Commission directed that the companies file tariffs canceling the sentence in question by Feb. 1, 1952.

The action would leave only the following sentence in that portion of the tariffs—"The service is furnished subject to the condition that it will not be used for an unlawful purpose."

Although the complaint covered only A. T. & T. and C. & P. tariffs, it was generally regarded as a test case, and the decision undoubtedly will have far-reaching effects on the nation's other telephone companies. Although there have been various court cases relating to service discontinuances on bookmaking grounds, the Katz case was the only one carried to the FCC.

The FCC decision was supported in full by three Commission members, Rosel H. Hyde, Robert F. Jones, and E. M. Webster. Chairman Wayne Coy and Commissioner George E. Sterling issued a separate concurring opinion, agreeing to the result but contending that subscribers should have opportunity for a hearing before service is discontinued.

Vice Chairman Paul A. Walker dissented, taking the position that the initial decision of FCC Examiner Fanney N. Litvin should be affirmed in its entirety. Mrs. Litvin had concluded that a telephone company "is not a law enforcement agency and should not be required to assume the function of law enforcement," in recommending that the complaint against the tariffs be dismissed. The examiner's opinion was largely supported by the FCC Common Carrier Bureau.

The FCC's views were somewhat dissimilar to those expressed by the Senate Interstate and Foreign Commerce Committee (TELECOMMUNICATIONS, Oct. 15) in its report recommending federal legislation to deprive bookmaking interests of interstate communications service.

The FCC majority, recalling the telephone companies' position that the provision about law enforcement officials' notification should absolve them from liability, said that "We are of the opinion that the carrier cannot so avoid responsibilities which are implicit in its operation."

"In giving or in refusing service

Why Directory Advertising?
USE THESE TESTED POINTS
TO PRODUCE MORE PROFITS FOR YOU . . .
11. MULTIPLE LISTINGS. Are you satisfied with your telephone directory? Is it well-organized for convenient and ready reference as a buying guide? Does it include all the classifications that our modern life demands?
You may be missing out on "multiple listing" opportunities to increase your advertising revenue, if your directory falls below standard. Loomis builds directories, better than standard, with modern catalog-type formats that encourage advertisers to list all of their business activities and tie in with their national affiliations.
Begin increasing your net revenue through advertising. We invite you to call or write Loomis today for an appointment with a telephone directory expert.
TELEPHONE DIRECTORY ADVERTISING
Loomis
Solve your directory problems . . . build subscriber relations . . . increase your net revenues . . . modernize your directory in appearance and utility. Loomis Specialists work full time for you. Satisfied independent telephone clients in towns of 10,000 to 100,000 in 22 states.
"WHERE TO CALL"
FT. WAYNE, IND. Gettle Bldg. EA stbrook 3477
ST. LOUIS, MO. 506 Olive St. GA rfield 3700
KANSAS CITY, MO. 810 Baltimore HA rrison 1270
UPPER DARBY (Phila.), PA. 6908 Market St. AL legheny 4-3763
OMAHA, NEBR. Omaha Natl. Bk. Bldg. AT lantic 0188
More than 300 Loomis-built telephone directories now are serving 650 cities and towns. Loomis clients report continued increases in net revenue every year.
Loomis
ADVERTISING
COMPANY

after receiving the advice mentioned in the regulation, or the 'other evidence,' the carrier must make a decision. That such decision may render it liable in the event of error, either to the subscriber or applicant or to process (of law) for aiding and abetting a criminal violation, does not eliminate the carrier's necessity to make the determination. We find nothing in the Communications Act which will permit the carrier to insulate itself from liability for its action in connection with the rendition or refusal to render service in the manner here sought."

The FCC opinion said another reason why the tariff cannot be sustained is that the company "binds itself" to accept "in every case" the notification of law enforcement agencies. "Thus, it is possible that even though it may be within the knowledge of a carrier that the advice given it by a law enforcement agency is unfounded, the regulations would require acceptance of the advice and action in response thereto. In such or comparable situations, the automatic action required by the regulations would be clearly unreasonable, and consequently the regulations themselves, demanding such action, must fall."

The order's final conclusion was that "However, our holding with respect to the second sentence of the regulations should in no way be construed as precluding the carrier, in the exercise of the judgment which it is required to make in furnishing or refusing service, from giving the weight or consideration, which it decides is justified under the circumstances, to *any* evidence, including evidence or representations which may be made to it by law enforcement agencies. No rule of thumb can be prescribed for application to the situations in which a carrier must make a decision.

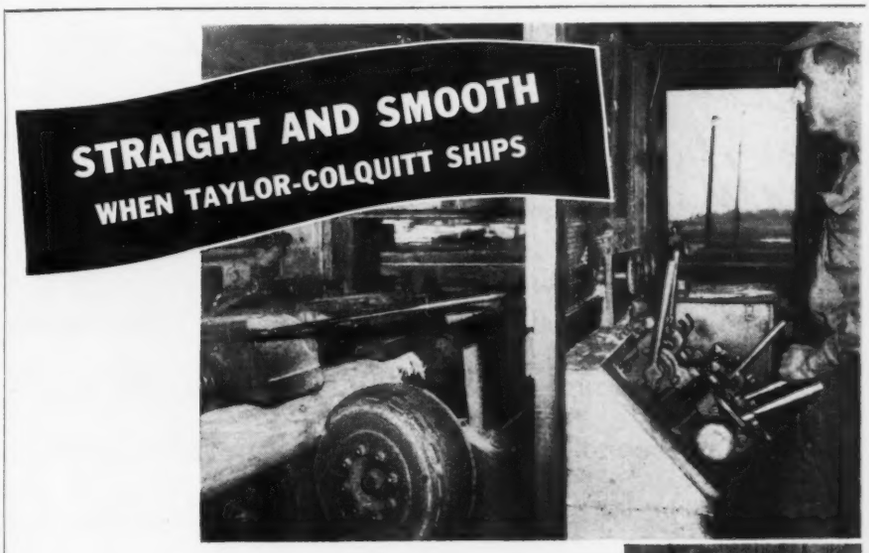
"It may be observed, however, that the nature of the offense involved, the strength of the evidence of its perpetration, and the patent need for social protection demanding immediate action, may in certain cases prompt the carrier to discontinue service without notice to the subscriber; while in other cases, perhaps instanced by the circumstances under which (Mr. and Mrs. Katz) were threatened with loss of their telephone service, the carrier may justifiably feel that notice of the proposed discontinuance can be afforded the subscriber so that he may avail himself of legal remedies looking toward continuance of his service.

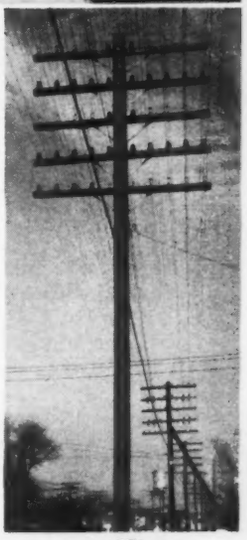
"Manifestly, although the carrier may in some situations offer the subscriber a grace period during which he may seek to prevent interruption of his service, in others immediate action will be indicated. We recognize that these are questions calling for careful judgment on the part of the carrier. But the fact that an arduous task may be imposed upon the carrier, and that it may possibly be visited with civil or criminal liability in the event of a mistaken decision on its part, cannot constitute a reason for permitting it to immunize itself from all responsibility for discontinuance of service."

The decision dealt only briefly with the tariff provision's first sentence, stating that it is "unexceptionable" that service should not be furnished if it is being used illegally.

In their concurring opinion, Chairman Coy and Commissioner Sterling said that "Telephone service has assumed an important, almost indispensable, place in our every day lives. To permit the discontinuance of such a service by the telephone company upon request to them by a law enforcement agency or upon any other basis of information that the telephone is being used for an unlawful purpose without first giving

(Please turn to page 46)





Not only has Taylor-Colquitt Co. always exercised strict controls to assure durability, but it has also led in the production of better looking and more sightly poles.

To this end it early adopted rigid specifications for timber selection and developed the first successful machine to trim poles. Today, Taylor-Colquitt trimming machines are standard in the industry and are used by most other good pole producers.

Throughout the 25 years in which it has been a pole producer, Taylor-Colquitt has achieved constant product improvement by developing new and better processes. Among these is Vapor Drying—a process requiring much unique equipment, but whose use results in stronger, stiffer, cleaner and more durable poles.

Discriminating users usually specify Taylor-Colquitt poles.

TAYLOR-COLQUITT CO.

SPARTANBURG, SOUTH CAROLINA

PLANTS AT SPARTANBURG, SOUTH CAROLINA AND WILMINGTON, NORTH CAROLINA

...Telling the Telephone story with words and music...

Millions of people have come to look on The Telephone Hour as a familiar and welcome visitor in their homes every Monday night. And on this famous radio program, they hear warm and friendly messages explaining various aspects of the telephone business . . . how the telephone industry operates . . . what telephone service means to the public and the nation. . . . On the opposite page is one of the stories that was told on a recent program. Like all Telephone Hour messages for the past 12 years, this was designed to create better understanding between the telephone industry and the people it serves.

BELL TELEPHONE SYSTEM

TELEPHONE HOUR October 8, 1951

BANGHART

There's a real veteran of the Bell System here with us tonight --a veteran with more than 54 years of service. Old fashioned in appearance--a little battered and worn--this veteran is still able to give service after being on duty, day and night, for 54 years!

It's a telephone instrument, one of those old goose-necked, wall-type telephones that haven't been made for more than 30 years. This veteran was installed back in 1897 for Dr. Charles E. Birch, a physician in White Plains, New York.

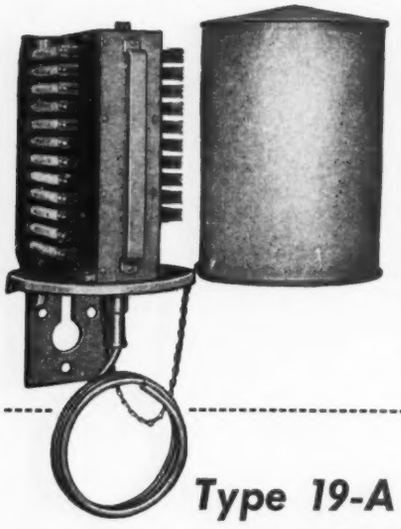
A few months ago, Dr. Birch, 88 years old, retired from practice and the faithful old telephone retired with him. Many times over the years the telephone company offered Dr. Birch a more modern instrument, but he preferred to keep the old, friendly telephone on the wall.

Just think of the messages that have been carried by this one telephone . . . the calls for help . . . the anxious questions . . . the reassuring words of hope and comfort. Think of how important this one telephone has been in the lives of so many people . . . and how important it was that it be sturdy and dependable in every emergency.

Sturdy and dependable. That's the way the Bell System has built the telephone service that is so important to you and your country today. Yes, a steady and dependable telephone system is essential to the welfare of America. That means that the telephone industry must be financially sturdy and dependable, too. Its financial strength is based upon rates high enough to meet the higher operating costs of today and to attract the investors whose money will be needed to build the telephone service you will want tomorrow.

W. J. O Connor, Manager, New York Telephone Company, White Plains, N. Y.; Donald Voorhees, conductor of the Bell Telephone Orchestra; Ferruccio Tagliavini, tenor; Ken Banghart, Telephone Hour announcer; and Wirth Judge, reporter on the White Plains Reporter Dispatch, examine the actual telephone referred to in the commercial.

★ Here's finer protection on the way! High-voltage breakdown tests, like that shown, are part of the constant research aimed at making Automatic Electric's high quality protective devices even better. This research is bringing you perfection in protection!

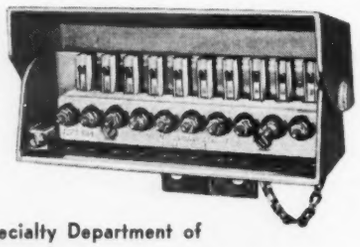


Type 35 Protected Cable Terminal

Terminates and completely protects cable. Each pair of protectors consists of two 3-amp. fuses and two positive-grounding, self-clearing discharge blocks—all quickly replaceable. Weatherproof hood insures trouble-free service. 11-, 16-, and 26-pair models available —with or without 6' cable stub.

Type 19-A Crossarm Arrester

Protects open wire lines and subscriber drops against lightning. Consists of 10 self-clearing discharge blocks and carbons, protected by weatherproof cover. Order Catalog Number SA-91.



Products of the Telephone Specialty Department of

AUTOMATIC ELECTRIC

Distributors in U. S. and Possessions: Automatic Electric Sales Corporation
Export Distributors: International Automatic Electric Corporation
1033 West Van Buren Street, Chicago 7, U. S. A.

(*Continued from page* 43)

the customer an opportunity to be heard, as the present tariff provides, appears to us to be unjust and unreasonable."

The Ohio Public Utilities Commission, meanwhile, issued an order Dec. 21 requiring telephone and telegraph companies to refuse service if they "have good cause to believe that such services will be used in the furtherance of gambling" or upon receipt of such notice from a law enforcement agency. The commission's proposed regulations were revised after hearings earlier this year.

REA: Loan Allocation

INCREASES in equipment and materials costs are having their effect on plans under farm telephone loan allocations made in previous months, two recent actions by the Rural Electrification Administration in granting supplemental allocations indicated. The Eastern New Mexico Rural Telephone Cooperative, Clovis, New Mex., which originally received a $581,000 allocation, has been approved for $220,000 more, while the Wilkes Telephone & Electric Co., Washington, Ga., originally allocated $184,000, now has another $107,000 available.

REA said that the initial Clovis allocation, for a system of 1200 miles of facilities to serve 1580 subscribers, has proved insufficient to complete construction. The Georgia concern has revised its plans, including the addition of a dial central office at Metasville, along with the three anticipated earlier. The completed system is expected to serve 643 rural subscribers.

The Clovis allocation was made in June, 1950, while the Georgia action came in December of 1950.

In addition, REA last month allocated $111,000 to the Plain Dealing (La.) Telephone Co., serving Bossier Parish. The company now provides magneto service to 246 subscribers over 25 miles of lines, and plans to convert to dial, build 73 miles of new lines, and add 151 subscribers.

REA Movie Premiere

THE NEW Rural Electrification Administration motion picture, "The Telephone and the Farmer", was premiered in Washington and in Forest City, Ia., where most of the picture was filmed, Wednesday, Dec. 19. REA staff members and a few guests viewed the picture in Washington, while the Forest City showing honored the "actors"—principally farm people

from that area—and the Winnebago Cooperative Telephone Association, on which much of the story is based.

In an address at the Iowa showing, REA Administrator Claude R. Wickard declared that one principle followed by the agency "is to give first opportunities to take advantage of the REA telephone program to existing companies, whether they are profit companies, mutual companies, or cooperatives. You will note that this principle is emphasized at the beginning and again at the end of this movie."

In both a prologue and an epilogue to the movie, it is suggested that rural people with telephone problems first contact their local telephone companies.

The community in the movie is inadequately served by an old farmer mutual system. After emergencies arise which point up the need for improved telephone service, following a heavy snowstorm, officers of the mutual combine with those of another mutual in the area to seek and obtain an REA telephone loan.

The picture is principally designed for showing at telephone cooperative organizing groups, and at organization and sign-up meetings, but will be made available by REA for other community gatherings.

RURAL: Farm Telephones

ACCORDING to preliminary returns from the 1950 decennial United States census, the nation had a slightly lower percentage of farms with telephones in 1950 than it did in 1920, the Rural Electrification Administration (REA) reported last month.

REA said, in what it described as the first state-by-state tabulation of farm telephones, that 38.3% of farms reported in the 1950 census had telephones, contrasted with 38.7% in 1920, the first census which included farm telephone statistics.

Numerically, the agency said, 400,000 fewer farms had telephones in 1950 than in 1920. The reports indicated that there were 2,059,474 telephones on farms in 1950, as contrasted with 2,498,493 in 1920. At the same time, of course, as the respective percentages indicate, the total number of farms has declined.

As was developed in the rural telephone legislation hearings, there has been divergence of opinion both on the statistics themselves and the weight to be given them. Telephone companies include all telephones in rural areas, serving non-farm establishments such as stores and country residences, in their figures, while the Census Bureau figures apply only to producing farms. In addition, the 1920 comparison does not reflect adequacy or quality of service, it was pointed out. Then, a much larger proportion of farm telephones showing up in the Census figures were served by farmer mutuals which were collections of a few stations connected together by wire strung along fence lines or in trees. Many of the mutuals fell into the discard as a result of the depression, lack of maintenance, and the effects of grounded interference from electrical power lines. The Census figures also do not reflect the gains made in farm telephone installations in the year and a half since the data were collected.

Lower percentage showings were principally in the Southeast, ranging from 6.5% in Mississippi to 18.8% in Tennessee, and in such states as Arkansas (10.5%) and New Mexico (14.8%). In Connecticut, 83.8% of the farms had telephone service, while 81.9% of Iowa farms were served by telephones.

Figures for states with major agricultural activities included the following random examples: Maine, 64.1%; New York, 71.0%; New Jersey,

Photograph shows a Neale crew leaving a North Dakota pole yard during a heavy snowstorm.

Every Neale crew is organized as a task force . . . for night and day service on any type of outside plant job. Highly skilled men, who have years of on-the-job experience in serving independent telephone companies all over the country, work with the most modern equipment and highest quality materials.

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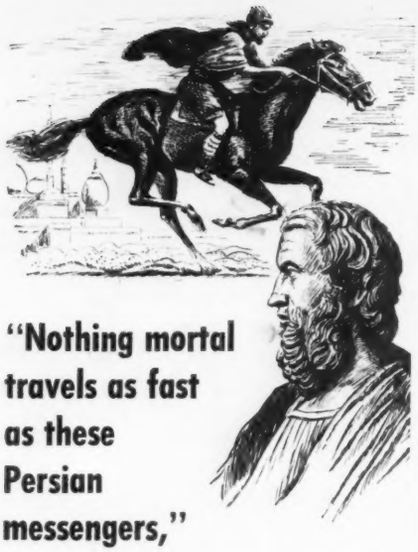

"Nothing mortal travels as fast as these Persian messengers,"

HERODOTUS SAID ABOUT 450 B. C.

Xerxes was having trouble in Greece in 470 B.C. To communicate with Persia, horses and riders were stationed a day's horseback ride apart along the whole road. Herodotus, Father of History, wrote, "these men will not be hindered from accomplishing at their best speed the distance which they have to go, either by snow, or rain, or heat, or by the darkness of the night."

For over 80 years Hemingray Insulators have been serving the communication and power transmission systems of the world. Neither snow, nor sleet, rain, nor heat have kept them from faithful performance twenty-four hours a day, year after year.

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71.8%; Virginia, 23.7%; Ohio, 60.1%; Illinois, 65.4%; Minnesota, 59.9%; Kentucky, 20.8%; Missouri, 46.4%; Texas, 23.8%; Idaho, 55.3%; Arizona, 42.3%; California, 57.4%; and Washington, 57.5%.

In well over half the states—27—more than half the farms were served by telephones at the time of the 1950 census. These included, in addition to the examples given, Colorado, Delaware, Indiana, Kansas, Maine, Maryland, Massachusetts, Michigan, Nebraska, New Hampshire, Oregon, Pennsylvania, Rhode Island, South Dakota, Utah, Vermont, and Wisconsin. Four other states were above the national average of 38.3%, including Nevada and North Dakota as well as the examples listed above. Numerically, REA said, particularly large declines were shown in Texas, Missouri and Illinois. Texas' percentage dropped from 32.2% to 23.8%, while Missouri went from 62.2% to 46.4% and Illinois dipped to 65.4% from 73.2%.

Independents Face Major Problem

(*Concluded from page* 24)

22,029 subscriber lines, and 616 against 560 toll circuits. On Nov. 1, there were 1835 held orders, the company reported, with many additional persons not having filed applications because they realized there was no immediate prospect of receiving service. Since 1946 the toll traffic volume has increased 10% each year. As fast as held orders are connected, new demands arise and there has been no substantial net gain in the adequacy of service since the beginning of World War II.

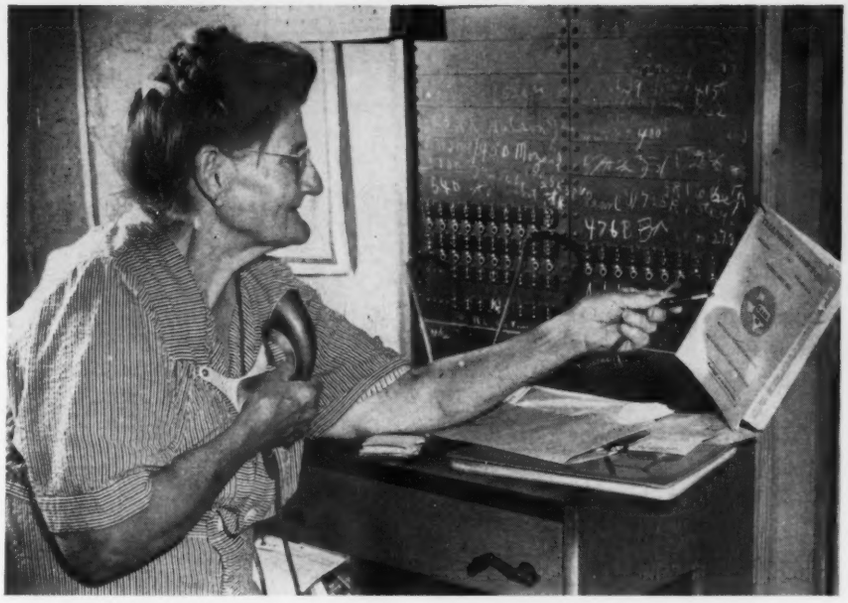
Company H: On Dec. 1, the company had on hand 2383 held orders. Complaints have been filed with the state commission because of the lack of adequate service for some of the company's exchanges. Of the total stations served by the company, about one-third are rural multi-party, and over 1000 rural lines have more than 10 stations per line.

Company I: There are 6693 held orders on hand, with 11,700 requests for regrading of service. The company has been ordered by the state commission to provide satisfactory service and re-install normal plant margins and the company has attempted to set up a program to take care of the most urgent of these requirements. In only two of the company's 73 exchanges there are no held orders and average loading on rural lines is 12 parties. Plant investment has increased from about $8 million in 1945 to $18 million as of September, 1951. An example of the company's problems is the existence near one city of a housing development of 179 dwelling units and only 10 rural telephone stations available to the project. Outside facilities as well as central office facilities are required to serve this development which is occupied largely by personnel employed by important industries. The company provides service for about 30 key manufacturing plants, and mobile service for a power company.

Company J: To provide adequate service during 1951, the company required 31,695 subscriber lines and had available 28,626. Similarly for toll, 270 circuits were required against 192 available. Although the company has a large number of held orders and needs additional cable circuits to provide minimum service, because of its inability to obtain sufficient allotments and actual deliveries of cable, the company had to lay off two construction crews and deferred major cable installation to serve industrial areas in its territory. In the near future, the company will have to face demands from occupants of one housing development of 1150 units just completed as well as later occupants of another 500 units.

Company K: Located in a heavily industrialized area which is a railway and lake shipping center, the company has about 5000 held orders with the demand for service greatly expanded since the beginning of 1951 and increased demands together with a decrease of materials available rapidly bringing about inadequate service. There are housing projects already occupied in the company's area which have no telephone service whatever today and will be provided service only on a limited basis.

Company L: Serving a large rural area in which are located some important manufacturing facilities, the company has more than 6900 held orders and all plant margins are exhausted. There is a large demand for regrading of service, with rural areas served primarily by multi-party lines which are heavily overloaded. To provide service in rural areas will require heavy rebuilding of rural plant.—THE END.



Every mark on the board means something to Jodie Matlock (above) who runs a one-woman telephone system that keeps Youngsport, Texas, linked with the outside world.—*(Houston (Tex.) Chronicle* photograph).

"One Woman Exchange"

"Jodie Matlock has operated her one-woman telephone exchange for nearly a quarter of a century".

JODIE MATLOCK'S "Hallo", carried over her one-woman telephone system, has been the connecting link between the thriving village of Youngsport, Texas, and the outside world for nearly a quarter of a century. Youngsport is 15 miles southwest of Belton and 12 miles southeast of Killeen, Texas.

Jodie's party lines wander over lots of miles, reaching way down the Lampasas River to the east and providing local service clear to Lometa on the west. Jodie used to have upward of 50 paid-up subscribers, but folks have been slow with their 50 cents per month dues the last few years, and the delinquent list is growing.

According to the Houston (Tex.) Chronicle, Jodie has weathered many storms, including a few years when the Youngsport operator was determined by ballot. Nobody could beat her in the elections, so would-be "centrals" gave up and quit running.

After 23 years at it she finds the calls are about routine. When the buzzer sounds, Jodie calls "Hallo", plugs in a number, pulls the ringing button and listens hard. She "Hallos" back and forth a few times and usually comes out with a "Hattie's on the line. Laverne, what do you want?" If the reception is very faint, she yells instructions. "Go outside and water your ground rod", she hollers.

Jody has and is performing a real service for her community. She has warned stockmen that a rise was coming down from the Lampasas so they could get their cattle out of the bottom. She finds out the price of eggs, cedar posts, and chickens before farmers start to market, and she has relayed many a death and sickness message.

During a recent interview, Jody chuckled when she recalled bootleg days with stills flourishing in the cedar brakes.

"I'll bet I sold a million gallons of hard liquor in repeating messages asking if so and so had a white mule for sale . . . or any red hogs or if John Doe wanted to buy a bull", she recalled.

And always there is the "baby business".

"You know how that is", she laughed. "The colder or stormier the weather, the more baby calls I get. They always keep me up on cold nights."

What will Jodie do when she retires?

"I may not say a word for a whole year after I leave this job", she declared, but a twinkle in her steady blue-gray eyes indicated that she may do some "hallo-ing" on her own then.

ALL the strength and durability inherent in steel are combined—with definite economies— in *Crapo* Galvanized Steel Strand. Heavy, ductile, tightly-bonded zinc coatings, applied by the famous *Crapo* Galvanizing Process, provide lasting protection against corrosion.

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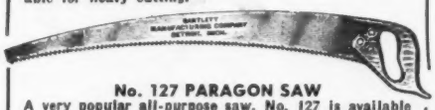
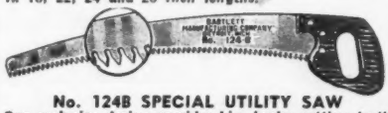
WRITE FOR SAMPLES AND QUOTATIONS

PROPER PRUNING WITH SAWS THAT HAVE PROVEN THEIR WORTH FOR YEARS.
NO NEED TO EXPERIMENT WITH NEW AND UNTRIED TOOLS.

No. 170 FORESTERS SAW
Extra large peg teeth, 4½ points per inch, and an unusually stiff blade, make this 26 inch saw suitable for heavy cutting.



No. 127 PARAGON SAW
A very popular all-purpose saw. No. 127 is available in 18, 22, 24 and 26 inch lengths.



No. 124B SPECIAL UTILITY SAW
Our exclusive design provides big, husky cutting teeth with 4 points per inch. Fast cutting and easily sharpened. No. 124B has 24 inch blade. If 26 inch blade is preferred, specify No. 114BD.

No. 114 RAPID CUT SAW
Similar to No. 124B except that every third tooth is a raker tooth. Gullets are especially deep to provide quick clearance. Also furnished in 24 inch length, known as No. 124 Rapid Cut Saw.

No. 41 TUTTLE TOOTH SAW
This popular saw is made in 20 and 24 inch lengths. Equipped with a special extra large handle. Tuttle Tooth design is excellent for large cuts.

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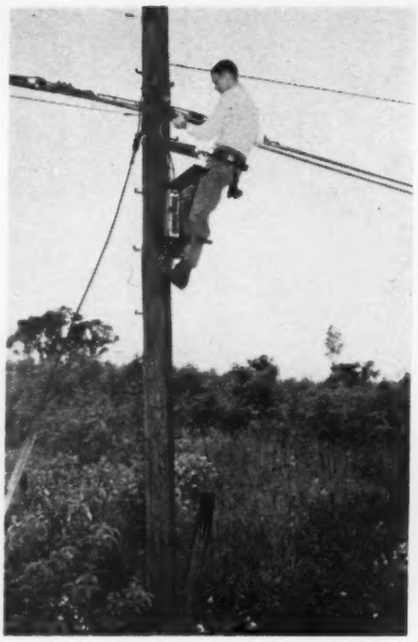

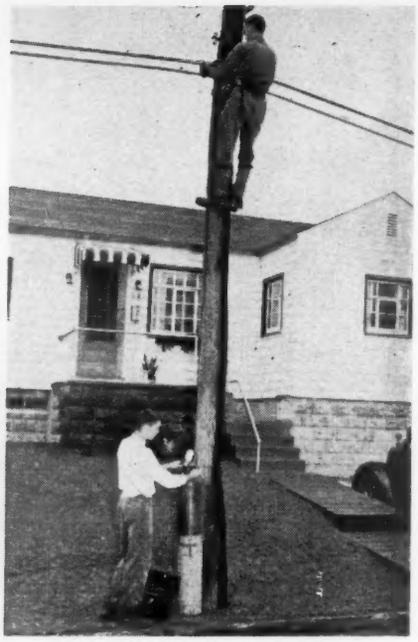

Trouble With A Trouble Man

—as reported by his wife

Editor's Note:
We thought you'd get a kick out of this article by Mrs. Sue Reed, an ex-operator and wife of the Southwestern Bell wire chief at Booneville, Mo. The story first appeared in the Kansas City Star.

EVER GO for a drive in the country with a man who is always looking for trouble? If not, you haven't lived—or maybe that's why you have.

There is nothing I would like better than to relax and enjoy a leisurely Sunday afternoon ride in the country. But do I get to? UH! UH! Not with my guy. He's a telephone man and his mind and eyes are on the wires wherever he goes.

Instead of letting me drive while he looks at the lines he drives and looks too and I have to watch the road to see that he doesn't go into a ditch.

I suppose there are telephone lines built along smooth roads but not where we go. We travel rough roads that loosen your teeth and shower you with dust.

Even on such roads the scenery is nice and I may forget for a second and relax a little. Then whoosh! The car stops so suddenly the windshield smacks me in the face and the dog riding in the back lands on the back of my neck. By the time I have got the dog out of my hair and made sure my nose isn't broken, the car is moving and "he" is saying:

"I thought those wires were crossed but there is a 'tramp' up there." I don't ask him what a tramp is doing up a telephone pole because I know he means the wires are transposed.

I try to get his attention off the wires. "Look at that pretty bird!" I exclaim. He sees it only because it is perched on a pole and answers grumpily:

"Woodpecker—they ruin the poles."

I try again, "Oh! Those cute little pigs!"

That starts him looking for "pigtails" in the wires.

"Wires," he informs me, "should not be pigtailed together, they should be spliced with a sleeve."

"With turn back cuffs or straight?" I try to be funny but he doesn't langh.

I call his attention to a lovely farm home. His eyes follow the wire leading to the house.

"There's no phone in that house," he says. "That wire is dead. Make a note, 'Dead drop at pole ninety!'" I write it down, then have to erase and rearrange the first two words I had unconsciously reversed.

I hope the day will soon come when all country lines will be buried far underground. Perhaps then we can have our Sunday drives with both of us enjoying the scenery.

Golly! Maybe he'll start lifting manhole covers!

. . . oops! wrong headline, anyway we just wanted to tell you that there's no need to get up in the air when you want supplies. Just contact Buckeye for any equipment your demands specify. It's as easy as that because Buckeye carries an extensive stock of the finest telephone supplies. No order is too large or too small that we won't give it immediate attention so send us yours to-day, you'll be pleased with our performance.

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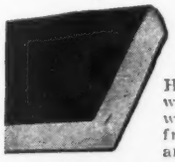
Bringing you



the theory of circuits with distributed constants

Here is a broad presentation of the theory of circuits with distributed constants, valid at all frequencies. You will find also the application of this theory to radio-frequency lines, power lines, telephone lines, filters, and wave guides.

ELECTRIC TRANSMISSION LINES

Distributed Constants, Theory and Application
By HUGH HILDRETH SKILLING

438 pages, 6 x 9, 185 illustrations, 7.00

In this modern book, the author first discusses the concept of distributed constants. Then he considers real circular functions, real hyperbolic functions, and finally complex trigonometrical or hyperbolic functions. Thus the material is as clear and understandable as possible. Lines at microwave frequencies are rather fully discussed, and the treatment is extended to hollow wave guides. The discussion of wave guides is unique in that they are treated as close relatives of transmission lines.

- **Only circuit concepts are used, and no field concepts or field theory are introduced.**
- **There are many diagrams and tables, carefully planned to be of the greatest value.**
- **Many of the discussions and derivations are original with the author.**
- **The numerous problems, carefully developed, will be a tremendous aid in study.**

CONTENTS

The Basic Equations
Traveling Waves
Standing Waves on Low-loss Lines
Lines with Loss
Line Parameters
Line Constants: Inductance and Capacitance
Line Constants: Resistance, Skin-effect, and Insulation Loss
Artificial Lines
Application of Transmission-Line Theory to Telephone Lines
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Application to Power Lines
Application to Radio-Frequency Lines
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Right now we're turning out more cable than ever before, to help fill the unusually large postwar need for it. We're anxious for the day when we will be able to serve *you*. In the meanwhile, full data concerning Kennecott Cable may be obtained from any Chase Office.

Chase Brass & Copper Co. is an affiliate company of Kennecott Wire and Cable, with 27 sales offices (23 of them warehouses) in leading industrial centers from coast to coast.

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With Ease and Safety

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New Shifting Tool Dee Safety Belt

Next to Safety in the experienced lineman's book, Accessibility of Tools is of first importance in selecting a Safety Belt. This new Bashlin Safety Belt is designed with sliding tool loops . . . keeps tools within easy reach. And the built-in extra safety factor saves the Safety Strap from wear. It's Safe . . . Practical . . . Comfortable . . . and you *know* it's right. It's Bashlin.

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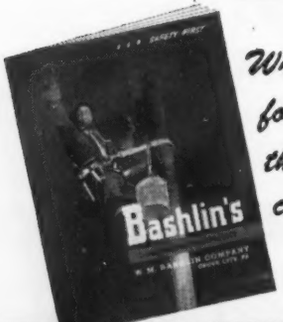
One piece aluminum sleeve adjusts from 15″ to 18″ in multiples of ¼″. Locked in place with standard steel screws.

Comfort on the job, lightness and safety combine in Bashlin's adjustable Climber with removable gaff . . . Forged of aluminum alloy, the Bashlin Climber is lighter than conventional climbers and the *Same Strength* as *Equivalent Steel.* It's form fitting and has all the original Bashlin features.

No. BD 14

Removable gaff forged from alloy steel, features triple locking device with standard self-locking tested steel screws



Write for this catalog

W.M. BASHLIN COMPANY
GROVE CITY 1, PA.

Small Company Talk

(*Concluded from page* 30)

Reserve for Accrued Depreciation, and the offsetting Debit, to the Credits to the various plant accounts, is also to account 171. This results in a net debit (in this illustration) to Acct. 171 of the difference between $387.83 and $170.89, or $216.94.

The last step is recording the material recovered in the Material and Supply Book.

Reference to the last entry on *Exhibit three* will show the information which has been posted to this sheet in the Material and Supply Book from the second column of *Exhibit two.* This column on *Exhibit two* shows that 4 20 ft., class 9, C. P. poles were recovered and placed in stock for reuse, and that the value of these poles was $27.00. The Material and Supply Book sheet, *Exhibit three,* shows these four poles recovered at a value of $27.00, and that this recovery, added to the previous balance, gives a new balance of 24 of this class pole on hand valued at $162.00 ($6.75 each).

Not all items of material and supply are carried in the Material and Supply Book, for there are simply to many small items of small value to make it worthwhile. Also there are some further complications as regards the use and reuse of drop wires and station wirings. There are adjustments to be made occasionally in the different Material records. These and associated problems will be discussed in the third article of this series a little later.—THE END

Central Office Maintenance

(*Concluded from page* 27)

the cations (carbonate, chloride, sulfate, etc.) are removed as formed acid products, thus freeing the water of these dissolved mineral impurities. There is no action on bacteria, colloidal, and organic substances, and nothing is added to the water.

Each refill charge has a definite mineral removal capacity, with the number of gallons of pure water delivered dependent on the mineral content of the local water. The less the mineral impurities, the more pure water will be available from each refill. The table below indicates the

(*Please turn to page* 54)

CHANCE 8-WAY EXPANDING ANCHORS

Save time and cost on telephone line guying

Chance 8-way Expanding Anchors are the first choice of many users in the telephone industry. Reason? . . . They give more holding power for less money!

Chance 8-ways expand quickly—there are no bolts to cut—the holding wires shear with a single blow of the expanding bar. There is no wasted area . . . the weight of the load is carried by eight blades instead of only two or four.

P. S. The six-inch 8-way is especially good for rural line guying. Only one size need be stocked . . . it fits both ½″ and ⅝″ rods. It fits in a six inch hole and expands to 70 square inches.

C52-3

A·B·CHANCE CO·
CENTRALIA, MISSOURI
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TRIBUTE TO DEPENDABILITY...

THROUGHOUT the United States today the number of telephone subscribers served by Federal Dial Switching Equipment exceeds 300,000.

This tribute to dependability—a record that has been established in a relatively short period of time—is evidence of the high regard that independent telephone companies of America have for Federal Dial Switching Equipment.

Why not give *your* subscribers the benefits of Federal Dependability?

Federal Telephone and Radio Corporation

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amount of purified water that can be obtained from a single canister charge in the water demineralizer.

Hydrion Battery Water Units—Refill Life

Mineral Content (3) (Parts per Million)	Gallons Per Charge Model C51B-S (1)	Model C51B-H(2)
50	165	414
75	112	280
100	84	209
125	65	164
150	57	139
175	48	120
200	41	103
225	36	91
250	33	82
275	30	76
300	28	70

(1) Uses Refill HCR-24 (A. E. Tompkin and Company)
(2) Uses Refill HCR-31
(3) To obtain the average output from each refill charge, ask the local water laboratory or city water department for the average mineral content in parts per million.

A purity indicator is built into the head of each unit that shows the quality of the delivered water at all times. This indicator is a meter that operates from an electrical outlet.

Adding Electrolyte

NO EFFORT should be made to add acid to electrolyte unless it is definitely known that loss of the liquid has occurred as the result of spilling or leakage. If it is necessary to add more acid to replace lost electrolyte, the battery should be first charged until it shows no change in specific gravity for several hours, and then dilute sulphuric acid of 1.200 to 1.300 sp. gr. should be poured in the cell to restore the normal electrolyte level. It may be necessary to add more electrolyte at the end of each equalizing charge until the specific gravity is normal. If too much acid is poured in the cell, some of the electrolyte must be removed and replaced with water, this process being repeated at the end of each equalizing charge if necessary until the specific gravity is at its correct value.

In maintaining normal electrolyte concentration, the original maximum specific gravity must never be exceeded; otherwise local action (discharge of active material due to impurities deposited on the plates) will be greatly increased. This local action chiefly takes place at the negative plate and increases rapidly with increases in the specific gravity and temperature of the electrolyte. This is manifested as an increase in the

(Please turn to page 56)

"Modern Central Office Maintenance Practices"

Test Questions on Sections VII-A and VII-B—The Central Office Battery; Operating Principle of the Storage Cell; Construction of Typical Central Office Storage Batteries; Storage Battery Capacity; Storage Batteries with Lead-Calcium Positive Grids; Specific Gravity of Battery Electrolyte; Battery Electrolyte—Addition of Water; Methods of Obtaining Distilled or Purified Water for Storage Batteries; Adding Electrolyte.

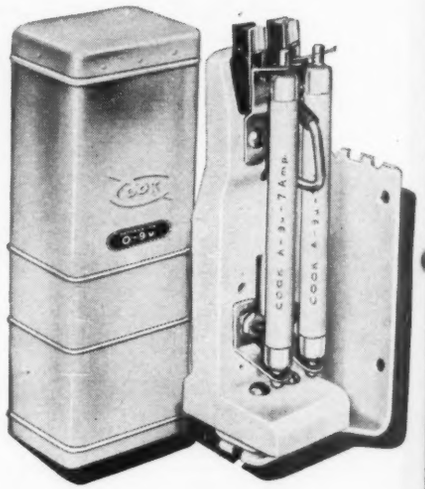
(1) What type of storage sells are used in a central office battery installation?
(2) Describe the action of the storage cell in the charging cycle. What happens in the storage cell when it is discharging into the load?
(3) What are the components of a typical storage cell?
(4) How is the capacity of a storage battery determined?
(5) What advantages are claimed for storage cells with lead-calcium positive grids?
(6) What is meant by the term "specific gravity" and what is the purpose of taking specific gravity readings of storage cells?
(7) Describe the procedure you would follow in taking the specific gravity reading of a pilot cell.
(8) Why is it necessary to add water to storage cells? What kind of water would you use for this purpose and how could you determine if it is satisfactory for use in the cells?
(9) What are the methods of obtaining the proper kind of battery water?
(10) Under what circumstances is it necessary to add electrolyte to a storage cell? Why must the original maximum specific gravity of the cell never be exceeded?

Construction

With the Double and America's

outdoors or indoors...

rely on Cook type "O-9u" sub-station protectors



The Cook O-9u Protector is equipped with A-9u 7 amp. lavite fuses and lightning arresters mounted on a heavy, moisture-resistant porcelain base, and enclosed by a weather-tight zinc hood. This protector meets all Underwriter requirements and is listed by the Underwriters' Laboratories.

Mfd. by Cook Electric Co.

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Materials and Supplies . . .

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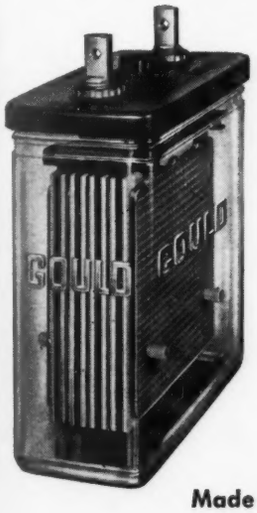
guy and messenger galvanized strand

The superior tensile properties inherent in steel are used to full advantage in *Crapo* Galvanized Strand. The tightly adherent zinc coating applied by the *Crapo* Galvanizing Process provides lasting protection against corrosion, and prolongs the life of the strand. Controlled ductility makes *Crapo* Strand easy to work and to serve. Low first cost and low yearly cost result in important economies for operating companies.

The all-round dependability of *Crapo* Galvanized Steel Strand is being demonstrated constantly by its outstanding performance in service. There is a size and grade for all practical needs.

LONG LIFE—LOW COST

the battery that lasts practically forever



gould planté

For long life and uniform dependable service, no other telephone battery equals the Gould Planté. It has rolled up amazing performance records, remaining in active full-float service for 20 years, 30 years and longer!

In the Planté, *all* of each positive plate is pure lead, containing *no* antimonial impurities. Thus, Gould has eliminated the primary cause of self-discharge, capacity losses and shortened battery life. Planté batteries float at constant voltage and maintain rated capacity all their life. Because they almost never need service, maintenance is negligible. If you would cut battery costs to a minimum, choose Planté.

Made by GOULD-NATIONAL BATTERIES, INC.

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the modern, all-plastic, lightweight telephone cable . . .

saves three ways—

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2. Lower installed cost
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Available for aerial, duct and direct burial use. For complete information contact your nearest Stromberg-Carlson Field Office.

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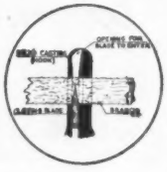
with SEYMOUR SMITH tools

The choice of tree men for generations

Center Cut Action



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No. 20 SAW HEAD
Head only $4.00
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16" needle-tooth saw blade fits in 3 different positions. Extra large hook for pulling out loose branches. Paint brush holder.

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NEW, FINEST EVER
PRUNING SAWS

A new Seymour Smith development — the fastest, easiest cutters on the market. Complete line of 6 models covering all requirements up to chain saw work.

FREE: Send for full descriptive matter and prices on all Seymour Smith products for professional pruning and tree care.

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The Line of Quality

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battery losses which must be made up by a greater charging rate. If this condition is not corrected in time, the battery will not give its full service life. No harm is done if the specific gravity of the electrolyte is a few points below its initial maximum at the end of each charge; in fact, a drop of as much as three points per year may be expected as the result of aging of the active material.—(To Be Continued in the February issue of FORTNIGHTLY TELEPHONE ENGINEER.

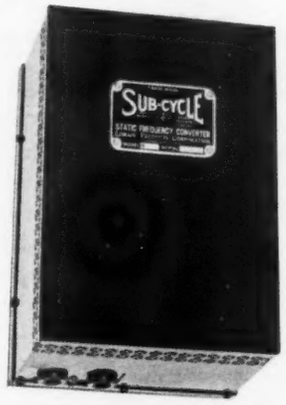
Night Life

"I DIDN'T sleep a wink last night." This far-from-unusual complaint can be heard at many an executive's lunch session. Insomnia is an occupational hazard of the harassed managers of American industry that is rapidly coming to rank with ulcers and heart flutters. Night will find the management man swindling sleep to finish a pressing or interesting job. Morning sees him off to work with more than circles under his eyes. His mental productivity is lowered, his perception and memory less accurate, his emotions out of control. How long will he continue to be up to his job of organizing and supervising?

How can the tired business man capture the elusive goddess, Sleep? First, he needs to discover his sleep pattern, since every person has his own pattern of sleep. He should figure out which hours he spends in bed asleep and awake. Then he should concentrate on the periods when he naturally sleeps most soundly instead of fretting about his wakeful time, and realize how much more beneficial a short, deep sleep is than a long, restless one. If he cannot fall asleep reasonably soon after he hits the hay he perhaps needs a warm bath or a light snack to calm him down and invite a relaxation which will lead him as quickly as possible into that period of his night when he does get sufficient, sound sleep.—From *MODERN INDUSTRY.*

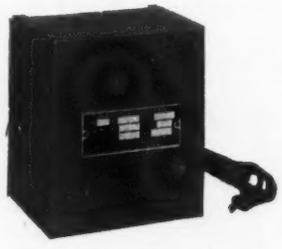
A New Year's Investment?

Have you an exchange with defective, or obsolete ringing power or transmitter battery power? If so, January first is the ideal time to install new equipment.



Such as Sub-cycle

You just can't do better for dependability of ringing power within the rated capacity of this machine.



Or Electrox?

Especially on long distance calls, this ideal source of operator's transmitter current on magneto switchboards, is a great aid.

Or One of These?

New Operator's Chair?
Additional Protection Rack?
New Operator's Headset?

Order Any or All of Them from Suttle Stock!

See Your SUTTLE Catalog

Serving Independent Telephone Men Since 1910

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LAWRENCEVILLE ILLINOIS

TECHNICAL

Questions And Answers

In this issue Mr. Mitchell discusses—(1) Party Line Phantom, and (2) Replace the Receiver Howler for Small Office. Future subjects include—Party Line Service of Kick Coil Common Battery Circuits, Remodeling Obsolete Telephones for Bridging Line Service, Magnetic Circuit, Characteristic or Iterative Impedance, and Elimination of Interfering Line Noise.

By Jay G. Mitchell

QUESTION: I have read your article in the December, 1951 issue of TELEPHONE ENGINEER & MANAGEMENT *under the caption of "Questions and Answers" in which you describe a possible three way phantom circuit. It occurs to me that you may expect considerable reflection in the circuit as shown in your sketch especially if the lines are long. Suppose we look toward the line from any branch. Then, since a phantom circuit has approximately 420 ohms characteristic line impedance, the combined impedance of the other two branches will be 210 ohms. Reflection will occur at the junction of the three branches. It is my thought that it will be worth while to eliminate this trouble by using a matching pad at the junction of the branches.*

If 600 ohm equipment is used for termination on any of the branches an additional pad or transformer having 420-600 ratio should be used. Otherwise each branch should be terminated in 420 ohms. Below is a sketch showing the pad arrangement at the junction of the three branches as well as an additional pad, 420-600 to take care of a branch having 600 ohm termination or 600 ohm equipment such as a repeater.

Jay G. Mitchell

In cases where voice repeaters are used on ends of lines hybrid coils wound for proper impedance may be used. Of course, in such cases, no pad will be needed at the end of the line. There is some loss in a resistance pad which must be taken care of with a voice repeater where the line losses are in too great value for good transmission.

ANSWER: This letter of comment is greatly appreciated and has been reproduced in full because of its undoubted value and general interest. However, it is to be remembered that three way transmission is not contemplated although the suggested phantom is a three party circuit in which the three connected parties are three telephone offices.

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The transmission conditions to be met, therefore, are the impedance of the phantom segments between any *two* offices with the third office connected to the phantom, normally, only as a terminal subject to incoming calls. In that case the drop of each of the three offices should be made of such an impedance theoretically as to insure that when the other two offices are connected for telephonic transmission the non-talking terminal will present a very high impedance to the entire three office network. Obviously the addition of balancing pads as shown in the sketch will merely have the effect of interposing unnecessary impedance into the circuit being used for telephonic transmission between some two of the three offices at the moment. There will *always be two offices talking* and one not talking if this plan is followed. Moreover these lines, as described in the original inquiry, are not long lines but short haul toll circuits. In other words the impedances of any two office segments of this three way phantom should be matched when talking but the third office should show high impedance through its terminal equipment when not connected for talking. It is obviously impossible to match the impedances of the phantom circuits to three offices so that the characteristic impedance of any one shall approximate the aggregate effective impedance of the other two at all times. Three way telephonic transmission is not desired nor considered practicable.

The proposed phantom would not, in any sense, constitute a conference circuit and so there is no point in attempting to match impedances for the *three offices* but only for two which will be involved in any given toll connection. The third office should always present a high impedance, since it is not involved in the telephone transmission normally. High impedance signalling equipment normally connected to the phantom at each one of the three offices would probably be adequate to insure this result.

Since the CHARACTERISTIC IMPEDANCE of any telephonic transmission circuit is a function of several factors it would be greatly appreciated if the originator of these comments would write in and give the parameters of the phantom circuit which has a CHARACTERISTIC IMPEDANCE of 420 ohms as the inquiry as received did not supply any data from which the CHARACTERISTIC IMPEDANCE of the three way phantom could be computed.

It is to be noted, moreover, that the proposed phantom is deemed to be feasible *from the theoretical standpoint* and it is stated to be subject to all the limitations of Phantom Circuit operation. If found to be operable the proposed phantom would be equivalent to a short haul toll circuit with an intermediate telephone office bridged between terminals. From the strictly theoretical standpoint there can be no reflected waves when the transmission circuit is terminated in an impedance which, with the transmission line, results in a total which is the iterative impedance. Conventional telephone talking equipment has been developed according to factors which insure this result, within reasonable limits, for the usual range of voice frequencies.

Since this is a problem of general interest additional comments, especially the results of similar circuit arrangements in practice, are earnestly solicited.

QUESTION: We are having so much trouble with our subscribers leaving their receivers off the hook that we are wondering if you can tell us how to make a growler. This is our dial exchange and we have 120 *volts A.C. or the exchange battery which is* 46 *volts.*

We want something that is really loud. Any information that you can give will be a big help.

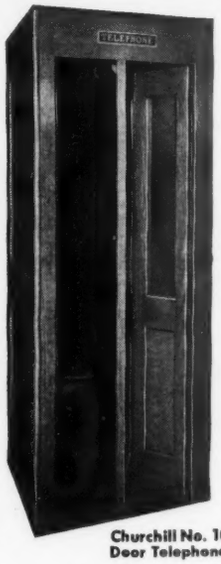
ANSWER: The best course to follow in this matter is to communicate your needs to your equipment manufacturer as there is no doubt that provision has been made in the design of your exchange equipment for the production of a "Howler" operating current.

In small exchanges it is often satisfactory to install an ordinary bell ringing transformer, carefully installed and lightly fused, with the secondary terminals connected to a key on the wire chief's desk so that the secondary alternating current from the bell ringing transformer can be sent out over a test cord on the telephone line on which the receiver has been left off its hook. The transformer should be one of the kind that produces three secondary voltages, 6, 12, and 18 volts and the circuit to the wire chief's desk to signal the offending telephone should be connected to the secondary terminals that result in the most satisfactory signal. This signal should not be too loud, in fact the *lowest voltage* that will produce a sufficiently audible hum at the offending telephone should be selected for

(*Please turn to page* 60)

Construction

With the Double
and America's



The Churchill No. 100 Folding Door Telephone Booth

The churchill
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Attractive—available in two finishes to harmonize with any interior. Included as standard equipment are electric light and automatic electric ventilator.

Users appreciate the comfort and privacy of a Churchill telephone booth—operating companies find it profitable.

Constructed as a single unit and equipped with reinforced back panel for mounting a wall telephone or coin collector.

No. 100-A—Selected white oak, in light medium oak satin finish.

No. 100-B—Birch, mahogany finish.

Overall height is 84¾"; width, 30½"; depth, 30½". Shipped knocked down and crated.

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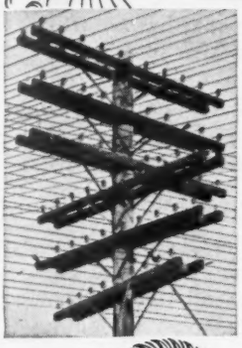
Materials and Supplies . . .

Guarantee of Stromberg-Carlson Leading Manufacturers . . .

"dependable" means both the trade-mark & the guarantee of cross-arms by American Cross-Arm Inc.



The finest pole and wire installation is useless if cross-arms fail. "Dependable" Cross-Arms are all that the name implies—made of sturdy, American woods, long seasoned, fashioned and finished to stand every weather condition from desert heat to mountain blizzards.

In Douglas Fir—Creosoted Yellow Pine or Gulf-Red Cypress.

the new Cook testerm drop wire connector . . .

reduces the annoyance of high resistance connections, facilitates testing, and reduces maintenance costs.

A great improvement in the method of connecting subscriber drops to open wire. "Testerm" is mounted on the cross-arm and provides a dry spot connection, thus insuring improved transmission.

Tie wires are attached to the open line wires with a split sleeve and are terminated on two 12-24 studs that are set in a glazed, low moisture absorption, porcelain block.

Drop wires are attached to the same studs. This permits testing without opening a taped connector.

The one-piece drawn metal hood is Monel. The terminal is weather-proof and all metal parts are rust-proofed.

the new cane seat is cooler - cleaner - more comfortable...

sturgis SC-240

Literally "by request"—this new operator's chair retains all the posture advantages for which Sturgis is famed and adds the cool, clean comfort of a *cane* seat. The posture-curved, well-cushioned back rest is covered in genuine leather.

The exclusive Sturgis "Follow-Flex" feature automatically adjusts to the operator's every movement, supports her restfully all the time, discourages fatigue, keeps her at top efficiency.

Other new and welcome features include a plastic-coated steel foot ring which retains its color and a handy purse holder, available on request. Six seat heights, all adjustable.

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DO a faster, *better* job with a scientifically-designed PENGO Auger—the twin-helix auger that bores clean, true holes in any kind of soil, most sandstones, hard-pan, decomposed rock, frozen ground—and even in permafrost. Saves power, cuts maintenance to a minimum! 15 sizes; to fit any earth boring machine.

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Write for folder

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this use. Of course the key to connect this special current to the offending telephone circuit through the testing equipment *must* be a release key and *not* a locking key. In other words the hang up your receiver signal should be short.

Talk To "Uncle Joe"

ACCORDING to Bill McCann, staff writer for the *Lubbock (Tex.) Journal,* telephone officials have no way of knowing how many persons from Lubbock have called Moscow in an attempt to "tell off" Joseph Vissarionvich Dzugashvili—alias "Big Brother", alias "Uncle Joe" Stalin.

However, Bill has advised his readers—" if you personally want to tell him a thing or two, the price, from Lubbock, is $15—$12 plus 25 per cent federal tax—for three minutes. If Joe is in an expansive mood and opens up with the full, fluid, fluent Union of Soviet Socialist Republics vocabulary—'no', 'vodka,' 'ours'. 'confession', 'liberation', etc. — the rate is $5 for each additional minute. Bear-baiting is cheaper on Sunday —a base rate of $9 for the first three minutes—and you can call any time. Joe won't be in church.

"If Big Brother is out some place to a peach rally, there still is his son, Vassily, an air-minded youth who—through sheer merit—has risen to the rank of lieutenant general and is vice marshal of Joe's air force."

The $15 rate is the same to call from Texas to any of the world's leading dictators. For 15 bucks a subscriber can listen to Franco explain how he's our bedtime buddies since he hates Communists too. Or you can hear Tito explain why you should send him arms and money—not that he hates Communists, being one himself, but because he doesn't like Big Brother, not right now, anyhow.

For the same $12 you can hear Peron's—or Eva's—ideas on opposition newspapers and freedom of the press. You can talk to Peiping and hear how Red China's admission to the UN would give the U. S. a chance to debate all problems under an olive branch.

On the home-front you can call Washington, D. C., from Lubbock, person-to-person for $2.95. If calling a congressman, additional time costs $15 for each half-hour.

And if it's the chief executive (H. S. T.)—well, why not follow *his lead* and use a *three-cent stamp?*

WHATEVER YOUR SIZE OR NEED . . .

POWERS EQUIPMENT

Serves Better! Lasts Longer!

SERIES 350
LIGHT DUTY MAINTENANCE AND GENERAL SERVICE BODY

This versatile body, available for installation on 3/4 and 1 ton chassis, is equipped with an under-floor winch and a fold-over derrick for handling poles up to 35 ft. in length. Standard equipment includes a 24 ft., two-section ladder which can be used from rear of body. Compartments are weathertight and are furnished with shelving, parts bins, and material hooks to provide orderly storage of a wide variety of service work needs.

"UNI-LIFT" TELESCOPIC SINGLE LEG DERRICK

The "Uni-Lift" is designed for use with multiple pulley blocks and can handle poles up to 35 feet in length. It can be installed on most light duty service vehicles. Derrick boom may be used in two lengths at two angles of elevation and is stowed along body side panel when not in use.

UTILITY COMPARTMENT SECTIONS

Available in 74", 84", and 104" lengths for converting pick-up or express-type bodies into general service units. A parts bin, 48" in length, is furnished with removable dividers as standard equipment in each section. Compartment doors have built-in cylinder locks, keyed alike. Overhead rack is optional.

Pay-out & Take-up WIRE REELS

MODEL PR — Strong, lightweight reel which can be used in a horizontal or vertical position on or away from the truck. Holds 15" coil

MODEL 3893 — Heavy duty reel which holds a 21" coil. Can be used for pay-out and take-up in a horizontal or vertical position.

MODEL CR — Operates from end of extended winch shaft. Holds 20" coil, is easily collapsed for mounting or removing wire.

POWERS-AMERICAN . . . Your one source for public utility bodies and equipment

- LINE CONSTRUCTION BODIES
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- POLE TRAILERS
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Without obligation, please send me details on the following:

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☐ "UNI-LIFT" ☐ 3893 REEL ☐ _____
☐ COMPARTMENT SECTIONS ☐ CR REEL ☐ _____

Name _____
Company _____
Address _____
City _____ Zone ____ State _____

Washington Bureau Reports

(*Continued from page* 11)

this field until the C. & P. issues are settled.

Personnel totals as of the end of 1951, compared with those when the Common Carrier Bureau was established in April, 1950, show the steady decline in available manpower to handle the communications regulatory matters. The Bureau, which had 157 employees at the outset of May, 1950, now has 121.

The Telephone Division, which then had 46 employees, now has 36. The 23-member International Division has dropped to 19 employees, while the Telegraph Division, originally staffed with 20 persons, now has 15. The Field Division has gone from 39 workers to 31; the Statistics Division, from 15 to 8; and the Licensing Division, from 5 to 3. The Office of the Chief continues to have 9 employees.

No prospect for an increase in the Common Carrier Bureau staff is in sight. If the Commission receives added funds for the upcoming fiscal year, starting July 1, the additional money undoubtedly will be for new television station application processing. It is understood that the FCC's request for TV station handling funds amounted to upwards of one-third of its total appropriation for the present fiscal year.

Although most rule-making proceedings in the common carrier field have been established, there are several still in the offing. It is hoped that rules for microwave short-haul toll and rural subscriber radiotelephone services on a regular basis may be established during the year.

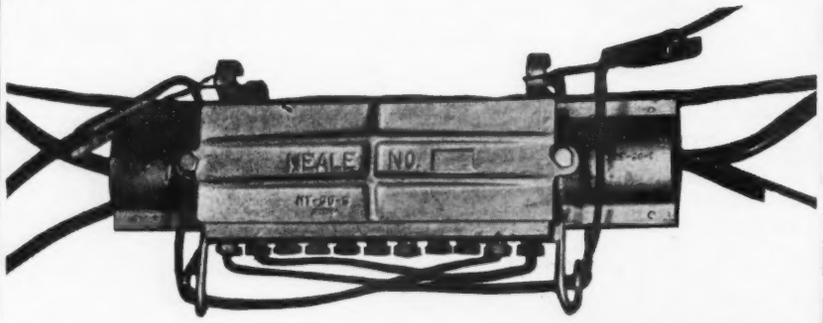
Depreciation matters also are in line for considerable attention. By the end of the year, it is hoped that depreciation rates for the international telegraph companies will be prescribed.

In the telephone field, there are still seven Bell System companies for which depreciation rates, worked out on a cooperative basis by the FCC, the companies, and the state regulatory agencies, have not been prescribed by the Commission—Pacific Telephone & Telegraph Co., Mountain States Telephone & Telegraph Co., Bell Telephone Co. of Nevada, Indiana Bell Telephone Co., Wisconsin Telephone Co., Southern New England Telephone Co., and Cincinnati & Suburban Bell Telephone Co. Depreciation rates now in effect must, of course, be resurveyed regularly to see if any changes, up or down, are warranted. When the Bell System work is concluded, the FCC may consider the possibility of studying depreciation rates of some of the larger Independent telephone companies, subject to full Commission jurisdiction.

Another question awaiting FCC decision is the establishment by the Bell System of full-time private line service via radio relay for organizations such as the Gulf Refining Co. An application for the Gulf Refining Co. system, in the rural subscriber radio service classification, has been pending before the Commission for several months. It is understood that the application has reached the stage of discussion at FCC meetings, with division of opinion at this stage because of the availability of frequencies for radio systems operated by the petroleum companies themselves.

Also in the radio field, but not directly involving the FCC for the time being, is the study of the Joint Technical Advisory Committee of questions arising from the Commission's denial of the Bell Telephone Laboratories' proposal for development of

Save 5 to 15 Man-Hours per Cut-in with the *NEW NT30 NEALE TERMINAL!*

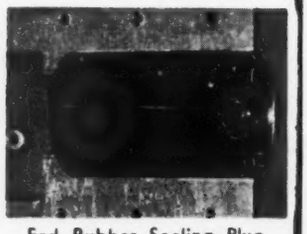


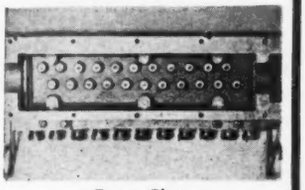
■ Yes . . . now you can cut down costly man-hours on cut-ins! Now you can save money on terminal replacement costs! The new NEALE NT30 TERMINAL makes it possible for one man—WORKING ON THE POLE ONLY 15 to 45 MINUTES—to make a complete cut-in! No wire cutting or splicing necessary. No joints to wipe . . . no seams to float.

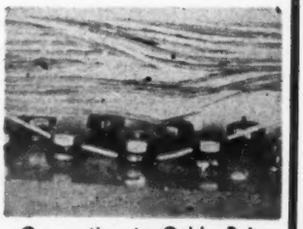
■ Move the NEALE NT30 to another location whenever desired. Forget about retailing or junking used terminals, because with the NEALE, you can use it over and over again.

■ Heavy pressure vulcanizes the long, heavy rubber sealing plug in the NEALE NT30 to the cable sheather and terminal shell. Terminal is then gas-pressure tight, moisture and insect proof . . . resistant to face plate leakage. Entire unit can be safely wired or gas-pressure tested.

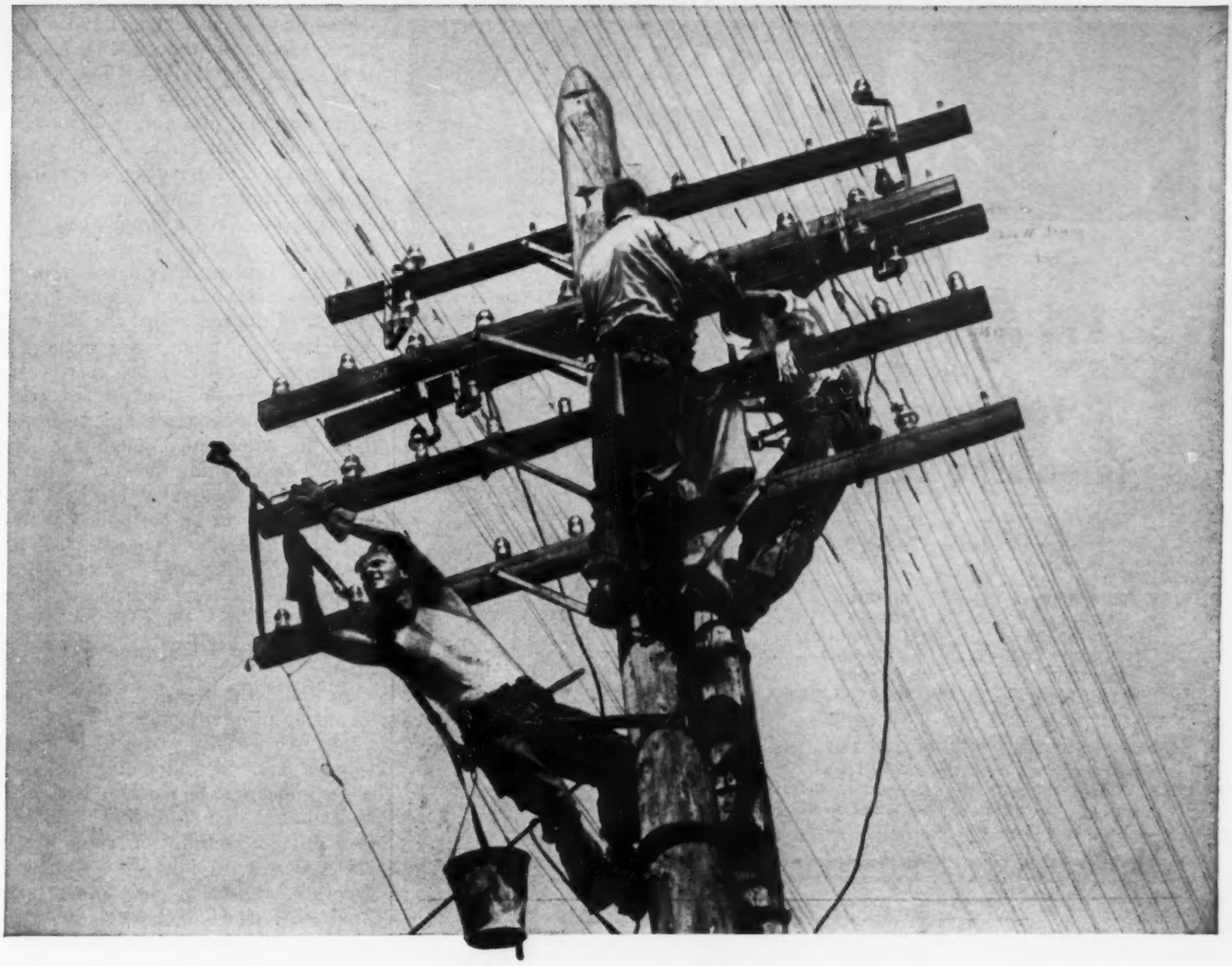
■ For complete information on the new NEALE Terminal, contact your jobber, or write direct to:


End Rubber Sealing Plug


Face Plate


Connection to Cable Pair

CABLE SPINNING EQUIPMENT CO.
TOPEKA, KANSAS Phone 3-1829



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Crapo HTL-135 makes spans of up to 450 feet practical under medium loading conditions — permits drastic reduction in the number of pole structures per mile.

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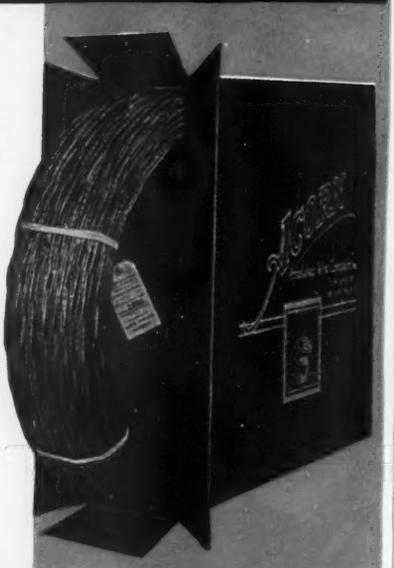

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Danville, Illinois

a broadband multi-channel radiotelephone system in the 470-500 megacycle area. The JTAC study is expected to take a long time, and the entire question probably will require more than a year for final settlement.

A number of pending cases with telephone ramifications involve television service. For example, the FCC is expected in the near future to launch a proceeding on community television antennas, and issues growing out of the request of the Belknap Associates of Missouri for authority to operate a radio relay service to make "off-the-air" pickups of television stations' signals and transmit them to community antennas. The FCC's long-standing theater TV hearings are still scheduled for Feb. 25, but are likely to be postponed again. Subscriber television systems, such as the Zenith Radio Corp.'s phonevision method, await some action by their proponents, since the FCC has authorized all experimental licenses requested.

Although the intercity TV usage assignment proceedings is still on the books, the method worked out about a year ago for allocating channel usage appears to be working well, and the Commission probably will not take further action for some time. All proceedings on the Western Union TV interconnection case, other than final FCC decision, have been completed for a long time, but apparently the press of other cases has prevented a final Commission verdict.

The Hush-A-Phone case, of course, also is before the Commission for final decision. Exceptions are due Jan. 18 in the automatic answering and recording devices proceedings, with oral argument on the examiner's report to be scheduled later. There is also a possibility of another foreign attachment case, involving a device to amplify the telephone receiver, but the distributors have not submitted a complaint or said that they will do so.

Mobile Radio

HOLDING THE view that the assignment of two additional pairs of frequencies to land carriers for mobile radio service is desirable because it will "better enable Independent operating telephone companies to meet present and future demands for service requiring the use of such facilities," the United States Independent Telephone Association recently supported an FCC rulemaking proposal to amend its regulations covering the land public radiocommunication services.

On another aspect of the Commission's rule-amending proposal, how-

ever, having to do with the rearrangement of present zone boundary lines and establishment of new zones available for assignment to telephone landline carriers operating domestic public land mobile radio systems, the USITA said that the proposed inclusion of the various Great Lakes and Lake St. Clair should not be adopted because lake boats might thus be encouraged to share in the use of the 35-44 megacycle land mobile frequencies "to an extent not contemplated" by present FCC rules.

"The action with the Commission proposes with regard to the assignment of additional frequencies for use by communication company common carriers in providing mobile radio telephone service is encouraging," the USITA said, continuing that "In our opinion, however, the proposed rule making insofar as it would encourage boats on the Great Lakes to make increased use of these facilities should not be adopted for the reason that the radiotelephone communications needs of these boats are already adequately provided for and the limited land mobile radiotelephone facilities are needed to meet the already large and continually increasing service demands of land vehicles."

Comments filed by the American Telephone and Telegraph Co. backed the rule proposal in its entirety, as did filings by miscellaneous common carrier owner Solomon Schiller, Brooklyn, N. Y., and Telanserphone, Inc., a New York MCC now in the process of setting up one-way radiopaging systems in several of the larger cities throughout the United States. Both domestic public land mobile licensees expressed favor with the Commission's proposal to make available a second frequency 35.53 mc, for assignment to common carriers offering only a one-way signaling service to mobile receivers, in addition to the presently available 43.58 mc.

The Lorain County Radio Corp., as operators in the Great Lakes radiotelephone system, is "deeply concerned over the implications" of the proposal to include the Great Lakes and Lake St. Clair in the zone listing for the 35-44 mc band, comments from that organization pointed out in support of the USITA objection to the inclusion of these regions.

"Any encouragement toward use, by any Great Lakes boats, of channels outside of the regular 'marine' system widely used by Lakes boats will reduce individual and overall safety provisions offered by the established Lakes radiotelephone system," the Lorain County filings said.—THE END.

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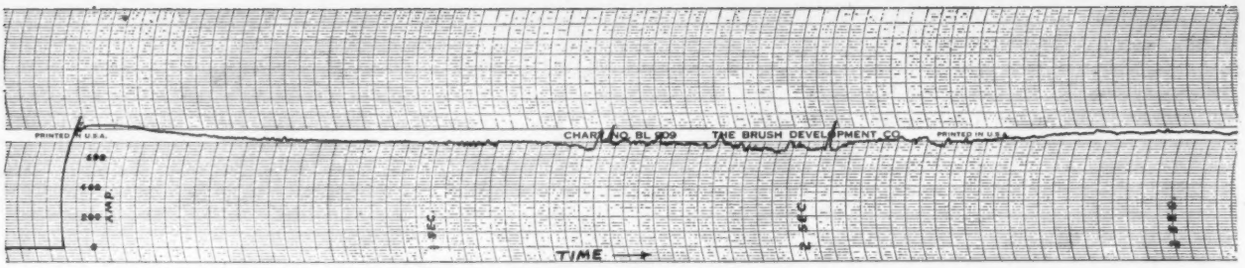
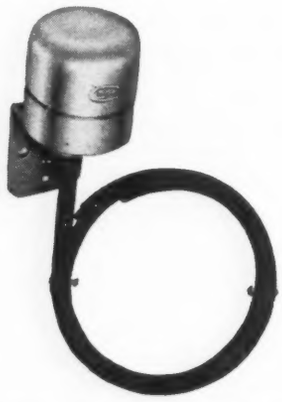


Discharge current against time as charted by a brush development recording oscillograph and bridge amplifier.

COOK ELECTRIC CO.:
New High Capacity Arrester

IN RESPONSE to the demand for a high capacity arrester capable of carrying power fault currents until the power breakers open, the Cook Electric Co., Chicago, Ill. has developed the HI-CAP Power Cross Protector.

In pursuing this work, the Cook Electric engineers found that the addition of the Inland Testing Laboratory to the facilities of the Cook Electric



Hi-Cap Power Cross Protector.

Co. greatly assisted in the evaluation of models. This laboratory is devoted to the making of certified tests in practically all fields of industry.

Those telephone companies who find it expedient to place their circuits on joint poles which are carrying in addition higher voltage power circuits generally place their telephone circuit lower on the pole than the power circuits and, of course, being in such close proximity to the power circuits, there are occasions when contact occurs between the two. In such an event, it is essential to remove the power voltage from the telephone line as promptly as possible and certainly before any damage is done to a subscriber's premises or person or to telephone company personnel.

One of the methods of removing the extraneous potential is to provide high capacity arresters at suitable spacings on the telephone circuits. The function of these arresters is to provide a path to ground of sufficiently low impedance so that the fault current flowing through them will quickly rise to a sufficiently high value to trip the circuit breakers on the power line. If the power breakers deliver an inverse time element break, it is necessary for the arresters to carry the very heavy fault current during the time required for the breakers to trip. The protectors may be damaged or even destroyed on occasion but if they have prevented damage arising from the high voltage on the telephone circuits they have performed their function and should be replaced. In most cases, of course, the fault current will be carried without destroying the arrester. These protectors also provide desirable lighting protection when suitably spaced along the exposed line.

According to Cook Electric Co., the HI-CAP Power Cross Protector is able to carry these heavy fault currents for a sufficient length of time to make it very desirable for such situations. The protectors have been thoroughly tested and their current carrying capacity has been certified to by the Inland Testing Laboratory. The manufacturer states these certified tests show that the current carrying capacity of the HI-CAP Power Cross Protector is in excess of: 750 D.C. Amperes for three seconds; 550 D.C. Amperes for four seconds, and 400 D.C. Amperes for five seconds.

Test set for evaluation of arrester performance.

Arrester discharging over 800 amps from photo by Fastex camera at 1,000 frames per second.

CITIZENS UTILITIES CO.
Microwave Link

A FURTHER application of microwave communication to the telephone field has been announced by the Citizens Utilities Co., which operates in more than 200 communities from New England to California.

The new system, a 23-channel PTM (pulse-time modulation) link, will be installed in the rugged mountain area between Redding and Alturas in northern California—a distance of 132 miles. Equipment for the link will be manufactured by Federal Telephone and Radio Corp., Clifton, N. J. an associate of the International Telephone & Telegraph Corp.

The new Federal PTM System, the first microwave application for permanent common-carrier telephone use to serve a large area, will provide additional toll circuits in the expansion of the company's telephone properties in northern California.

Citizens' telephone system, which will incorporate the new microwave link, covers 10,000 square miles—an area more than twice the size of Connecticut and larger than seven other states. Included in this serv-

(*Please turn to page* 69)

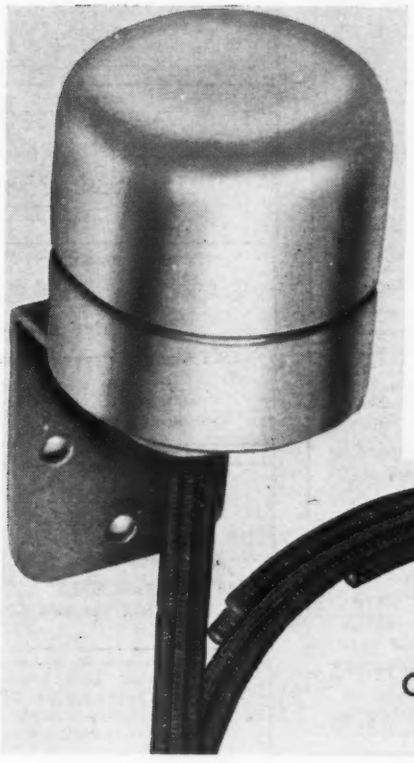
Power Cross Protector

by COOK

THE CONTINUED extension of the practice of joint occupancy of wood poles by communication and power circuits of higher voltages has created a need for heavy duty arresters on the communication circuits.

In the event of contact between the power and communication circuits, the arresters must be capable of carrying the fault current long enough to allow the power breakers to operate and de-energize the power circuit.

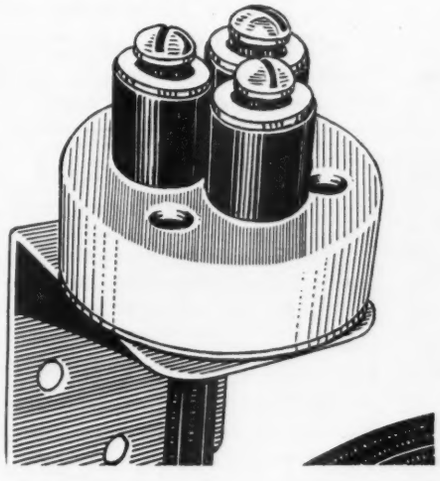
It should be remembered that a large margin between full load current and probable fault current assures rapid operation of the power breakers. Therefore, in placing these arresters the total impedance of the fault current path should be kept sufficiently low to assure a large fault current. This impedance can be lowered by reducing the regular spacing of the arresters along the line. These arresters, distributed along the telephone line, also give considerable protection from lightning damage.



Catalog No. 501-40

The HI-CAP Power Cross Protector consists of three carbon electrodes mounted on a porcelain base and enclosed in an alloy cover, permanently clinched in place. It has three #10 B&S insulated copper wire leads and a bracket for quick easy mounting and installation on pole or crossarm. Each electrode is equipped with a fusible element which melts and further reduces the impedance of the fault current path when the fault current continues over an extensive period.

Unit with the cover removed showing porcelain base and the position of carbon electrodes.



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(*Continued from page 66*)

ice area are the cities of Alturas and Susanville and the Lassen Volcanic National Park, which contains the most recently active volcano in the United States.

Initially, the new Federal microwave system will be equipped for operation on 12 channels, three between Redding and Alturas terminal stations; seven between Redding and Burney, another terminal; and two between Alturas and Burney. Unattended repeater stations will be located at a point six miles from Burney and at South Fork Mountain, approximately 22 miles from Alturas.

In designing the new link, Citizens and Federal engineers have taken full advantage of the superior propagation conditions afforded by the surrounding mountain peaks. By placing two of the antenna towers at heights of 5,300 to 7,500 feet above sea level, it will be possible to span the 65-mile distance between the Burney and Alturas repeater stations in a single hop. Normally, the spacing between stations is 25 to 30 miles.

Other features of the installation include complete RF (radio frequency) stand-by equipment, auxiliary gasoline generators that will cut into service automatically should the primary power supply fail, and an alarm system to notify personnel at the terminal stations of any unusual conditions or operational difficulties arising at the repeater points.

The new Federal PTM link was purchased by Citizens to improve its service by augmenting existing wire lines and by providing a more dependable system which is free from wire-line failures resulting from heavy snow, ice, and other adverse conditions encountered in this area.

Radio Relay

RURAL ELECTRIFICATION Administration program to test use of radio relay stations for farm telephone service in areas where pole line construction is difficult or expensive moved to the state of an FCC application last month.

The Fredericksburg & Wilderness Telephone Co., Chancellor, Va., the first REA telephone borrower to cut REA-financed telephone facilities into service, asked the Commission for authority to build two class-2 experimental rural subscriber stations, one at Alsop, and one at Five Mile Forks, Va. They will operate on 158.55 and 152.09 megacycles.

Arrangements call for the telephone company to lease the stations from the Department of Agriculture.

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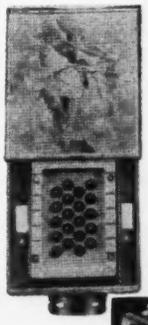

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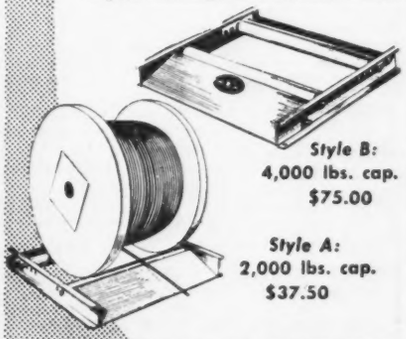

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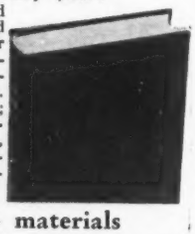

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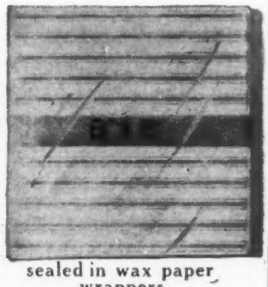

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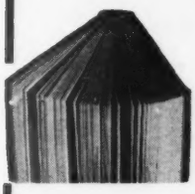

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ADVERTISING, Directories—General Telephone Directory Co., 604 Pine Ave., Long Beach, Cal., and 185 N. Wabash, Chicago, Ill.—[ADV. 2]

ANCHORS, Plastic Expanding, Universal. All Purpose—Mount in any Material, Holub Industries, Inc., 424 DeKalb Ave., Sycamore, Ill.—[ADV. 3]

ANCHORS & WIRE CONNECTORS—Matthews Scrulix Anchors, Matthews Telephone Wire Connectors. Write for bulletins. W. N. Matthews Corp., St. Louis 16, Mo.—[ADV. 4]

AUGER—The "Alaska Frost Auger." Free trial on your own machines. Henning Electric Motor Co., P. O. Box 786, Fargo, N. D.—[ADV. 5]

BATTERIES, Dry Cell—The Ray-O-Vac Company, 2317 Winnebago St., Madison, Wisc.—[ADV. 6]

BATTERY—WATER UNITS Demineralizers for Tap Water—A. E. Tomkin & Co., 1828 Columbia Rd., N.W., Washington 9, D. C.—[ADV. 7]

BELTS — CLIMBERS — COMPLETE LINEMEN'S EQUIPMENT, W. M. Bashlin Co., Bashlin Bldg., Grove City 1, Pa.—[ADV. 8]

BELTS — CLIMBERS — PLIERS — SAFETY STRAPS—CONSTRUCTION TOOLS. Klein & Sons, Mathias. 3200 Belmont Ave., Chicago 18, Ill.—[ADV. 9]

BOOTHS—Acoustic Telephone—Sherron Metallic Corp., 1201 Flushing Ave., Brooklyn 6, N. Y.—[ADV. 10]

BOOTHS—Churchill Cabinet Co., 2119 Churchill St., Chicago 47, Ill.—[ADV. 11]

CABLE. All Plastic, Aerial, Duct, Direct Burial, PBX, Switchboard.—The Ansonia Electrical Co., Ansonia, Conn.—[ADV. 12]

CABLE SPINNING—The Cable Spinning Equipment Company, 432 Crane St., Topeka, Kans.—[ADV. 13]

CARRIER EQUIPMENT—Adler Telephone & Telegraph Carrier Equipment has been standard for twenty years in the Independent Field. Mfd. only by Southern Electric & Transmission Co., 3127 Holmes St., Dallas, Texas.—[ADV. 14]

CONNECTORS, CABLE—Cannon Electric Development Co., 3209 Humboldt St., Los Angeles 31, Calif.—[ADV. 15]

CORDS, Instrument and Operators—Commercial Cord & Supply Co., 26 Main St., Clifton Springs, N. Y.—[ADV. 16]

CORDS, Switchboard & Telephone—Runzel Cord & Wire Co., 4727-31 Montrose Ave., Chicago 41, Ill.—[ADV. 17]

CROSS ARMS—American Cross-Arm, Inc., 141 W. Jackson Boulevard, Chicago, Ill.—[ADV. 18]

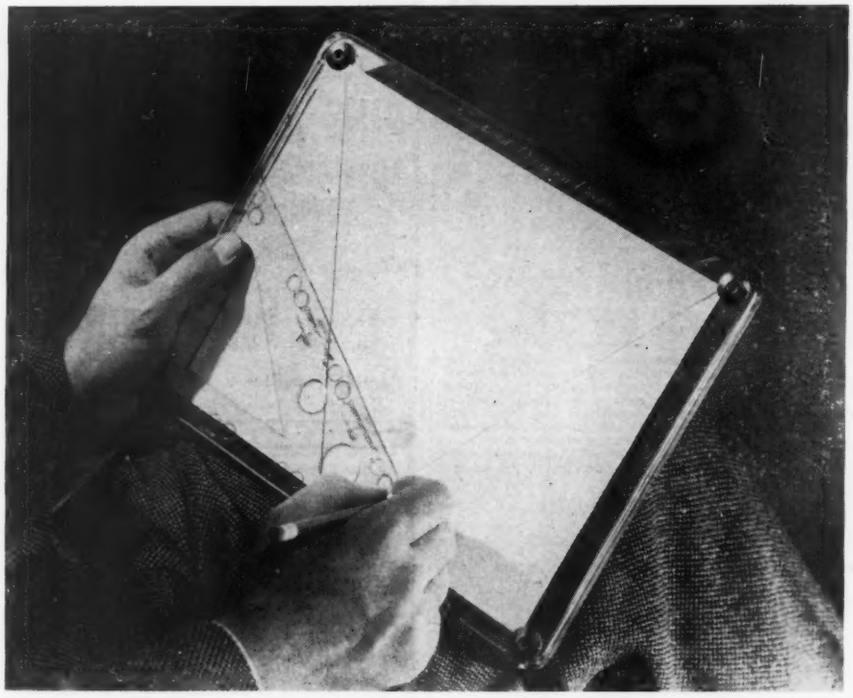
"EARTH BORING MACHINES" Sterling Model "A"—Precision Engineered and Hydraulic Controlled. Sterling Engineering & Mfg. Co., 173 Gilligan St., Wilkes-Barre, Pa.—[ADV. 20]

ELECTRIC HOT WATER HEATERS, Thermostatically controlled for any hot water heater. Vulcan Electric Co., Danvers 17, Mass.—[ADV. 21]

ENGINEERING, Construction—Neale Construction Company, 432 Crane St., Topeka, Kans.—[ADV. 22]

GENERATORS—A. C. power anywhere with "Katolight" plants and generators. Kato Engineering Co., 131 Maxfield Ave., Mankato, Minn.—[ADV. 23]

the New Products Showcase



DRAWING BOARD:—*A new portable drawing board molded from lightweight Bakelite styrene plastic incorporates a number of modern features of interest to industrial engineers, tool designers, architects and students of mechanical drafting. The drawing board consists of a single molded piece of clear plastic, 9¾ inches by 12¼ inches. Four corner clamps for attaching 8½ by 11 paper make it no longer necessary to carry thumb tacks. The clamps are cleverly recessed into the plastic so that the triangle or roller can ride freely over them without interference. Two metal straight edges, one vertical and one horizontal, are cleverly retractable so that the triangles can be moved over all four edges of the paper. The use of lightweight Bakelite styrene plastic has reduced the weight of the drawing board by as much as 75 per cent over conventional boards. The board is easy to carry and is space-saving for it can easily be accommodated in a brief case. Thirty, sixty and forty-five degree triangles can be stored in recesses underneath the drawing board and can be clamped securely in place. The high luster plastic gives an excellent drawing surface that will give years of service. There will never be thumb tack holes to cause bothersome errors in drawing.—For further information check New Product 380.*

FURNACES—For quickly and economically melting lead and paraffin—Mutual Liquid Gas Equipment Co., Inc., 3600 W. Imperial Highway, Los Angeles, Calif.—[ADV. 24]

INSPECTION SERVICE—For poles, crossarms, and preservative treatments. Inspectors stationed throughout U.S.A. A. W. Williams Inspection Co., Mobile, Ala.—[ADV. 25]

INSULATORS, Porcelain—Porcelain Products Inc., Box 300, Findlay, Ohio.—[ADV. 26.]

JACKS, for lifting Cable Reels, Pulling Poles and Maintenance Work. Duff-Norton Mfg. Co., 1710 Preble Ave., Pittsburgh 12, Pa.—[ADV. 27]

LIGHTWEIGHT PULLERS—Coffing Hoist Company, 800 Walters St., Danville 5, Ill.—[ADV. 28]

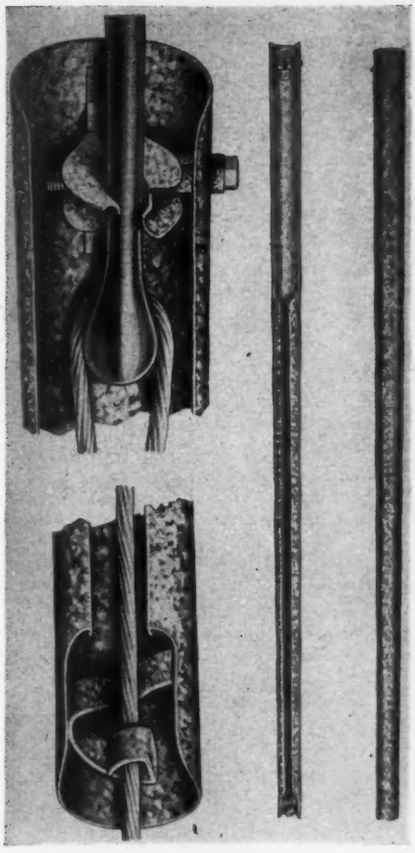
PIPE PUSHERS—Giant Manufacturing Co., South 6th St., at 12th Ave., Council Bluffs, Iowa.—[ADV. 29]

PIPE PUSHERS—Greenlee Tool Co., 2136 12 St., Rockford, Ill.—[ADV. 30]

PINS & BRACKETS—Mfrs. of all sizes of Locust Pins and Oak Brackets. The Locust Pin Co., Inc., Front Royal, Va.—[ADV. 31]

POLE HOLE DIGGERS—For derrick mounted trucks. Tel-E-Lect Products, Inc., 9613 Minnetonka Blvd., Minneapolis 16, Minn.—[ADV. 32]

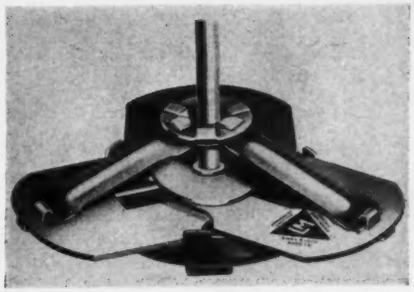
POLES—Cedar poles and Fir cross arms. R. G. Haley & Co., Inc., Spitzer Bldg., Toledo 4, Ohio.—[ADV. 33]



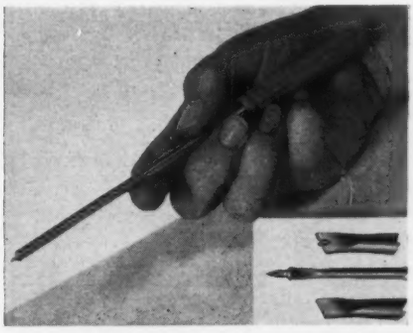
GUY WIRE PROTECTOR: *Line Material Company's new guy wire protector is made of thoroughly galvanized No. 18 gauge steel and is tapered, tubular and fully rounded with smooth rolled edges. It has a 30-inch "cutaway" opening at the bottom which permits installation over an anchor rod and two 6-inch guy clamps in series. There are no loose parts to fall out and become lost. It is available in 7-foot and 8-foot lengths, and the latter size is REA approved.*

Installation is made by means of a base clamp which is tightened conveniently from the side with one bolt.

For Free Literature Check New Product 381.



EXPANDING ANCHOR:—*Line Material Co. has recently redesigned its expanding anchor to offer several important improvements. According to the manufacturer the holding power has been increased by larger sliding plates which have an expanded area 10% to 15% greater than the old design. Tamping to the expanding position has been made easier by a new hinge arrangement at the point where the spreader arm attaches to the sliding plate. This obviates the possibility of binding. The spreader arm of the anchor is heavier and stronger and will not bend or distort when the anchor is tamped to the expanded position.—Check New Product 382.*



SCREWDRIVER:—*A new model screw-holding screwdriver has been developed by Hunter Tool Co., to drive small screws in tight, hard-to-get-at places. The long, thin shape and shockproof, Tenite 2 plastic handle of the new Hunter M8 makes it suited for electrical, radio and television and instrument work.—Check New Product 383.*

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Please forward complete information on the following products and services described in the January, 1952 issue of TELEPHONE ENGINEER AND MANAGEMENT. (Check information desired.)

NEW PRODUCTS

NP 380..... NP 381..... NP 382..... NP 383.....

SERVICES AND SUPPLIES

ADV. 1.....	ADV. 2.....	ADV. 3.....	ADV. 4.....	ADV. 5.....	ADV. 6.....
ADV. 7.....	ADV. 8.....	ADV. 9.....	ADV. 10.....	ADV. 11.....	ADV. 12.....
ADV. 13.....	ADV. 14.....	ADV. 15.....	ADV. 16.....	ADV. 17.....	ADV. 18.....
ADV. 19.....	ADV. 20.....	ADV. 21.....	ADV. 22.....	ADV. 23.....	ADV. 24.....
ADV. 25.....	ADV. 26.....	ADV. 27.....	ADV. 28.....	ADV. 29.....	ADV. 30.....
ADV. 31.....	ADV. 32.....	ADV. 33.....	ADV. 34.....	ADV. 35.....	ADV. 36.....
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ADV. 49.....	ADV. 50.....	ADV. 51.....	ADV. 52.....	ADV. 53.....	ADV. 54.....

Name ..... Title .....

Company .....

Street Address .....

Town ..... Zone..... State.....

Buyers' Directory

POLES, Southern Yellow Pine—Colfax Lumber & Creosoting Co., Inc., P.O. Box 23, Pineville, La.—[ADV. 34]

POLES, Creosoted Southern Yellow Pine and Douglas Fir. The Long-Bell Lumber Company, Wood Preserving Div., R. A. Long Bldg., Kansas City, Mo.—[ADV. 35]

POLES, Southern Yellow Pine—Taylor Colquitt Company, 290 E. Main St., Spartanburgh, S. C.—[ADV. 36]

POLES, Southern Yellow Pine—Texas Creosoting Co., Orange, Texas.—[ADV. 37]

POLES—Texas Best pressure-creosoted poles, Lone Star Creosoting Co., P. O. Box 9, Longview, Texas.—[ADV. 38]

POLES—Western Red Cedar, Western Larch, Lodgepole Pine. B. J. Carney & Co., Minneapolis 3, Minn. and Spokane 8, Wash.—[ADV. 39]

POLES & CROSS ARMS—Creosoted poles and crossarms. Conroe Creosoting Co., Conroe, Texas.—[ADV. 40]

PROTECTIVE EQUIPMENT—Reliable Electric Company, 3145 Carroll Avenue, Chicago 12, Ill.—[ADV. 41]

GAS-TITE CABLE TERMINALS—Sub station protectors, main dist. frames; central office protectors; interior junction boxes; lightning arrestors.—Cook Electric Co., 2700 Southport Ave., Chicago 14, Ill.—[ADV. 42]

PRINTING—Telephone forms, Cullom & Ghertner Co., 600 21st Ave., Nashville 4, Tenn.—[ADV. 43]

REBUILT TELEPHONE & SWITCHBOARDS—Telephone Repair & Supply Company, 1760 Lunt Avenue, Chicago 2, Ill.—[ADV. 44]

SUPPLIES—New all metal heavy duty extension loud ringers; ready wire reels, payout only and payout and takeup in one.—Suttle Equipment Co., Lawrenceville, Ill.—[ADV. 45]

SWITCHBOARDS, TELEPHONES, ETC.—Automatic Electric Co., 1033 W. Van Buren St., Chicago, Ill.—[ADV. 46]

TELERING—Telephone ringing by frequency conversion. Voltage range for all purposes, central office and private branch exchanges. Telkor, Box 186, Elyria, Ohio.—[ADV. 47]

TRUCK BODIES—Highway Trailer Co., Edgerton, Wisc.—[ADV. 48]

TRUCK BODIES AND EQUIPMENT—McCabe Powers Auto Body Co., 5900 N. Broadway, St. Louis 15, Mo.—[ADV. 49]

WIRE DROP & INSIDE—Jackets of neoprene, rubber or plastic. Lowell Insulated Wire Co., Lowell, Mass.—[ADV. 50]

WIRE, Insulated—DATED DROP WIRE—Neoprene or Weatherproof—Alphaduct Wire & Cable Co., Milltown, N. J.—[ADV. 51]

WIRE, Insulated Drop and Bronze or Copperweld—Acorn Insulated Wire Co., Inc., 36 Freeman St., Pawtucket, R. I.—[ADV. 52]

WIRE, Insulated Drop, Genuine Ironite—Paragon Electric Co., Two Rivers, Wis.—[ADV. 53]

WIRE, Insulated Drop, HT Bronze, Paraprene or Braid Insulation—Paragon Electric Co., Two Rivers, Wisc.—[ADV. 54]

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HIGHWAY TRAILER CO.: S. T. Ramey Appointed

L. E. CRAIG, vice president and general sales manager, Highway Trailer Co., Edgerton, Wisc., has announced the appointment of S. T. Ramey as sales promotion manager for the organization. Mr. Ramey will be in charge of all of the company's advertising, sales promotion and public relations activities. His headquarters will be at the Highway Trailer Co. offices in Edgerton.

Mr. Ramey comes to the Highway organization after many years in advertising and promotional work. He served as sales and public relations counselor on the staff of Kenneth

S. T. Ramey, recently appointed sales promotion manager of the Highway Trailer Co., Edgerton, Wisc.

Boehnert & Associates, Chicago, sales promotion manager for the home appliance division of the Murray Corp. of America, Scranton, Pa., director of promotion, Bakers of America program, Chicago, and advertising manager, American Hospital Supply Corp., Evanston, Ill.

During World War II, Mr. Ramey established and directed a training school and program for 10,000 plant and supervisory employees of the Emerson Electric Mfg. Co., St. Louis, which received national acclaim from the armed forces and industry.

He has written and conducted courses in various phases of advertising and salesmanship for business organizations and on the adult level in the public schools of St. Louis, Springfield, Warrensburg, Cape Girardeau and other cities for the Missouri State Department of Education adult education program.

Mr. Ramey is a graduate of Chi-

(*Please turn to page 76*)

Not-so-secret weapon . . .

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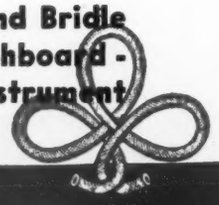

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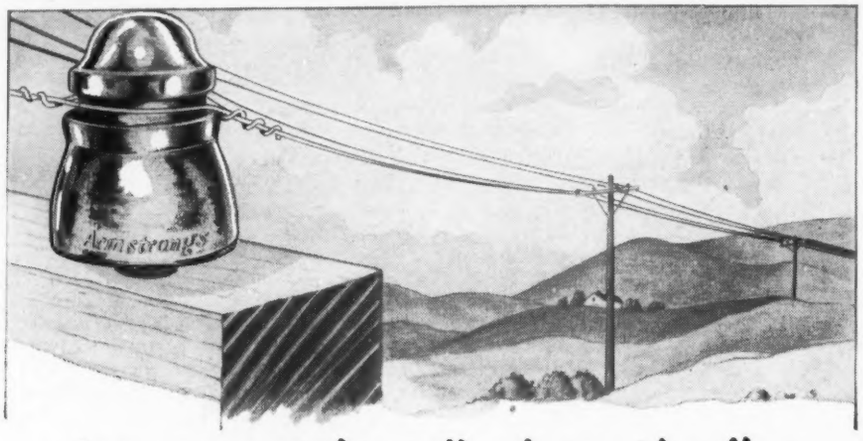

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cago University with a B.A. degree in business administration and holds credits toward a master's degree in education from Indiana University. He is married and has a daughter. Now a resident of Evanston, Illinois, he plans to move his family to Janesville, Wisc., in the near future.

OBITUARY: Fred T. Caldwell

FRED T. CALDWELL, for many years a senior officer and director of International Telephone & Telegraph Corp. and associated companies, died Dec. 21, 1951 at Memorial Hospital, New York City.

Mr. Caldwell was born in Bloomfield, Iowa in 1883. Graduating from Iowa State College in 1903, he worked for various Independent telephone companies in the United States until 1911, when he became general manager of the Canadian municipal telephone system of Edmonton, Alberta. In 1915, he was appointed superintendent of telegraphs and time service for the Grand Trunk Pacific Railroad and the Canadian Government Railway, with headquarters in Winnipeg.

Mr. Caldwell's long association with I.T.&T. began in the year of its foundation, 1920, when he became chief engineer for one of the System's original units, the Cuban Telephone Co. He was transferred to Spain in 1924 as chief engineer of the Spanish Telephone Co., the I.T.&T subsidiary that modernized and expanded the Spanish telephone system.

Mr. Caldwell was made a vice president of I.T.&T. in 1937 and a director in 1943. Early in 1945 he also became a vice president and director of International Standard Electric Corp., the I.T.&T. subsidiary charged with manufacturing operations overseas. That same year, at the request of the War Department, he was assigned to Germany as deputy commander of the communications division of the United States Military Government.

At the time of his death, Mr. Caldwell held the following offices in the I.T.&T. System: director of International Telephone & Telegraph Corp. and International Standard Electric Corp.; divisional representative for I.T.&T. for the Iberian Peninsula; president and director of International Telephone & Telegraph Corp. (Espana); vice president and director of Standard Electrica, Madrid, and Sociedad Anonima Radio Argentina, Buenos Aires; and director of Standard Electrica, Lisbon, and Compania Radio Aerea Maritima Espanola, Madrid.

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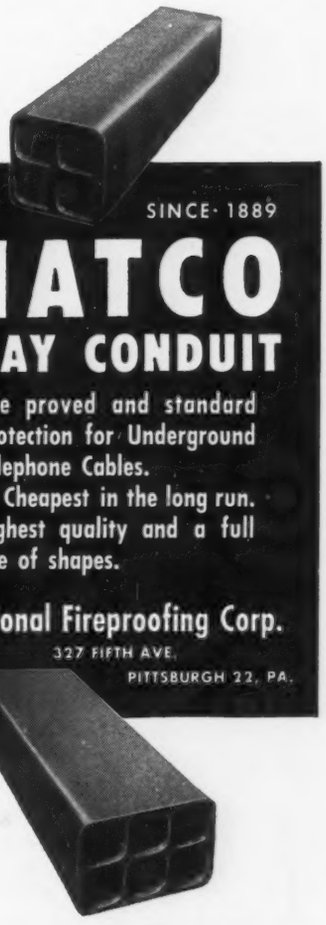
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THE BACK OF THE BOOK

By John G. Reynolds

Recipe For Bedlam . . .

WE'D HAZARD a strong guess that the life of a telephone information operator in Tokyo or any place else in Japan is a short and maddening experience. Unless the traditional Asiatic attitude of "What shall be, will be" is a potent thing, Info operators probably are carried from their boards following each shift in the Japanese equivalent of a straight jacket. That idea is based on the fact that only six streets in all Tokyo, a city of 6,225,000, have any names. Fact is only a few streets in all of Japan are named. Add the still further fact that a great many Japanese family names are the same and you've got . . . well, problems.

• • •

"Salary Dilemma . . ."

THE DAY definitely is past when an individual can hope to grow wealthy from savings out of wages or salary," says a feature article in a recent issue of *U. S. News & World Report*. "Old ideas about what constitutes a 'high' income are having to be revised, along with old ideas about the size of a fortune needed to support a family when a man retires."

This is the result of two potent forces which, in combination, have reduced the purchasing power of the dollar on one hand, and have made it impossible for even people with very large gross incomes to save substantial sums on the other.

Force one is *inflation*. Today's dollar, going by the government figures, is worth only a little more than half as much as the prewar dollar. Force two is *taxation*, which now bites deeply into the incomes of people of moderate means, and takes most of the earnings of people in the upper brackets.

U. S. News reviews some of the tremendous changes that have occurred since 1939. Taking into consideration the most recent tax increase, *the man who earned $4,000 a year then, must receive a little better than $9,000 now if he is to live as well*—and relatively few people have bettered their incomes to so great an extent. *The man who earned $10,000 must take in more than $25,000 if he is to take care of taxes and the results of inflation and have the same living standard as before.* And, as you go up the income ladder, the situation becomes almost fantastic. It takes an income of better than $365,000 a year to maintain living standards that could be bought for $50,000 in 1939. It is obvious that not one man in hundreds of thousands has been able to increase his gross so greatly.

As a matter of fact, raises of salary, even though they may be large, cannot solve the problem—for the simple reason that the tax collector is going to take a large part of the raise and, at high levels, most of it. According to the *U. S. News* computation, if a married man with a taxable income of $10,000 gets a $1,000 raise, taxes will absorb nearly a third of it—$290. If a married $100,000 a year man gets a boost of $10,000, government will take more than two-thirds of it—$7700, leaving him $2300. And the single man, of course, gets hit harder.

As the magazine points out, the salaried, white-collar groups have been hit hardest so far. Wage earners have fared much better—the article says, "Inflation has raised their pay far more than it has raised their cost of living, and taxes are low where levied at all." The average manufacturing worker, consequently, has had an increase in real wages of some 30 per cent since 1939. However, future tax increases, if they come, will of necessity cut deeper and deeper into lower-income groups, so this situation may not be permanent.

In any event, taxation and inflation are the biggest problem millions of middle-class Americans now face. And that's why Congress is getting more and more restive over the Administration's spending plans.

• • •

How True . . .

WE RAN ACROSS an editorial in the Salisbury, N. C., Evening Post on the subject of utility bills the other day. We thought it was pretty well put, so we're reprinting it in part to give you a chance to smile through your tears.

"Inflation is a horrible thing.

"Got a bill from the Water Works today for its services to the household for the past three months.

"Do you know those scavengers charged almost as much for supplying water 24-hours a day for a quarter of a year as it costs to buy four-fifths of a quart of really good Scotch whiskey?

"How can a poor man expect to live?

"Before they put in these dad-blamed water works all an honest man had to do to get all the water he needed was to send his wife to the well (or to the neighbor's well) whenever it got low in the bucket.

"And the telephone bill!

"Just because of a couple of conversations with New York, a little chit-chat with Birmingham and Kansas City, a heartfelt message to Winston-Salem, a bit of information-seeking from Washington, and a routine word or so to Raleigh and Chapel Hill, those bandits want $12.09, or enough to tip the waiters at a party for 15 or 20 people.

"It's a darned good thing that a quarter of a pound of chipped beef goes as far as it does."

• • •

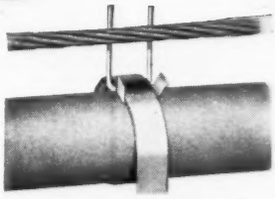
What Price Profanity?

IN AUSTRALIA cussing is fast becoming, by telephone at least, a luxury item. The fine for using profane language over the telephone was recently raised from $22 to $112. We don't exactly know who has the job of slapping on the fine nor, for that matter, when. But certainly it's further evidence, if any be needed, that inflation is taking its toll in all lands.

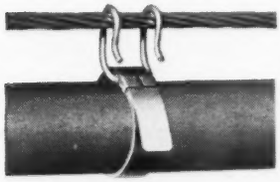
"JOB PROVEN"

By Linemen The Country Over

NICOPRESS Tool for Compressing Sleeves

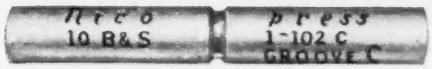


National Adjust-A-Strap, partially installed. Notice split buckle to facilitate wrapping zinc strap around cable



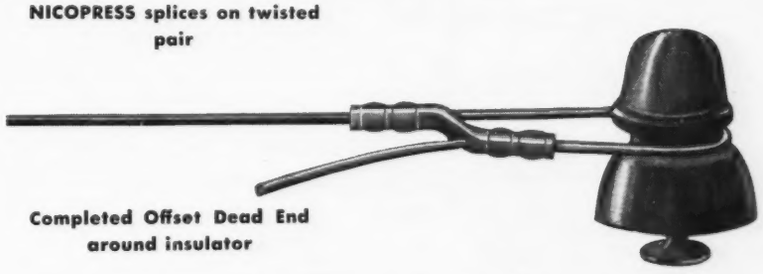
National Zinc-Wrap partially installed

Ask Your Jobber



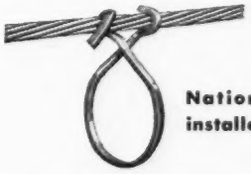
NICOPRESS line wire Splicing Sleeve

NICOPRESS splices on twisted pair



Completed Offset Dead End around insulator

NICOPRESS Reducing Sleeve splice on wires of different sizes (before compressing)



National cable ring installed on messenger

NICOPRESS Repair Sleeve used to replace defective old style joints

NICOTAP—Split feature permits easy installation on line wire.

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How did you measure the results of your current directory ... was it based on the results of the previous issue? We find that most telephone companies are following such a method for determining whether a good or bad job was done.

We sell the classified advertising for directories that serve more than 4,000 Independent Telephone Exchanges, and from these results we have been able to establish standards of measurement; such as, directory revenue per station, directory revenue per business account, directory revenue per advertiser and advertisers per one hundred business accounts.

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